This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

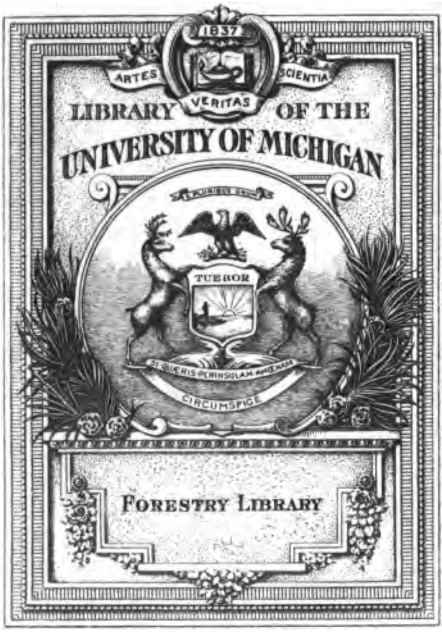
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`



LIBRARY OF THE
UNIVERSITY OF MICHIGAN

FORESTRY LIBRARY

U. S. DEPARTMENT OF AGRICULTURE,
FOREST SERVICE—BULLETIN 71.
GIFFORD PINCHOT, Forester.

154

RULES AND SPECIFICATIONS
FOR THE
GRADING OF LUMBER

ADOPTED BY THE VARIOUS
LUMBER MANUFACTURING ASSOCIATIONS
OF THE UNITED STATES.

COMPILED BY
E. R. HODSON,
FOREST ASSISTANT, FOREST SERVICE.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1906.

For Library
Dup. Room
11-16-1928

LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Forest Service,
Washington, D. C., March 1, 1906.

Sir: I have the honor to transmit herewith a manuscript entitled "Rules and Specifications for the Grading of Lumber Adopted by the Various Lumber Manufacturing Associations of the United States," compiled by E. R. Hodson, Forest Assistant in the Forest Service, and to recommend its publication as Bulletin 71 of the Forest Service.

Very respectfully,

Gifford Pinchot,
Forester.

Hon. James Wilson,
Secretary of Agriculture.

[PUBLIC RESOLUTION—No. 41.]

JOINT RESOLUTION To protect the copyrighted matter appearing in the "Rules and Specifications for Grading Lumber Adopted by the Various Lumber Manufacturing Associations of the United States."

Whereas the proprietors of certain copyrighted grading specifications and other copyrighted matter have consented to the use of such copyrighted matter in the "Rules and Specifications for Grading Lumber Adopted by the Various Lumber Manufacturing Associations of the United States," a publication prepared in the Forest Service of the United States Department of Agriculture; and

Whereas sufficient authority to publish and pay for the printing of said "Rules and Specifications for Grading Lumber Adopted by the Various Lumber Manufacturing Associations of the United States" is given in the bill making appropriations for the Department of Agriculture: Therefore

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That said copyrighted matter, wherever it appears in said "Rules and Specifications for Grading Lumber Adopted by the Various Lumber Manufacturing Associations of the United States," shall be plainly marked as copyrighted matter, and shall be as fully protected under the copyright laws as though published by the proprietors themselves; and the permission for the use of such matter shall be deemed to be limited to the purposes of this resolution.

Approved, June 29, 1906.

CONTENTS.

Page
Introduction........ 7
Development of grading........ 7
Association grading........ 9
Special grades........ 9
Exchange grades........ 9
State inspection........ 10
Universal grades........ 10
California Sugar and White Pine Agency........ 11
Dressed Gum Lumber Manufacturers' Association........ 14
Flathead Lumbermen's Board of Trade........ 15
Georgia-Florida Sawmill Association........ 19
Gulf Coast Lumbermen's Association........ 21
Hardwood Manufacturers' Association of the United States........ 26
Maple Flooring Manufacturers' Association........ 45
National Hardwood Lumber Association........ 45
National Veneer and Panel Manufacturers' Association........ 62
North Carolina Pine Association, Incorporated........ 63
Northern Pine Manufacturers' Association........ 66
Northwestern Hemlock Manufacturers' Association........ 85
Oregon and Washington Lumber Manufacturers' Association........ 92
Pacific Coast Lumber Manufacturers' Association........ 93
Redwood Manufacturers' Association........ 104
Southern Cypress Manufacturers' Association........ 105
Western Pine Manufacturers' Association........ 112
Yellow Pine Manufacturers' Association........ 112

RULES AND SPECIFICATIONS FOR THE GRADING OF LUMBER.

Adopted by the Various Lumber Manufacturing Associations of the United States.

INTRODUCTION.

It is only within late years that the manufacturers of lumber have adopted and standardized rules for the grading of their product. It is the object of this publication to bring together, for the first time and in convenient form, the grading rules adopted by the various lumber manufacturers' associations throughout the United States.

The rules here given are subject to constant revision in minor points by the different associations which authorize them, and they are revised only to the dates specified.

Several of the associations have copyrighted their rules. These rules, which are designated, are protected by Public Resolution No. 41.

DEVELOPMENT OF GRADING.

In the early days of the lumber industry in this country there were practically no standards of quality, called grades. There was a standard of quantity or scale, but it was not until later that the need for a measure of quality was felt. The present systems of grading lumber are the result of a gradual growth and evolution. Owing to the changing conditions of production and consumption, it has not been possible to devise a system absolutely fixed. Slight variations must be expected, but the tendency is to become more and more stable as the conditions are more thoroughly understood.

Lumber was first sold either "log run" or "log run, culls out." It was measured, but the relative quality was not determined. The dealer, however, separated his purchase into two or three different lots based on quality, and in a way graded his lumber. This practice gradually grew until it crystallized into specific rules for certain of the leading markets. One of the earliest markets where grading was practiced was Bangor, Me.; later it was taken up at Albany, N. Y., and at Port Deposit, Md.

At all these points inspection was made by the dealer or an official inspector, either State, county, or city. For many years at the great centers of distribution inspection was carried on in this way. The purchaser shipped his lumber to the dealers, who, as the demand became more and more specialized, divided it into gradually increasing numbers of grades. It was not until in the early eighties that any attempt was made by the producer of lumber to grade his own product before shipping.

White pine was one of the first species to be graded, as it was among the first to be lumbered. In 1833 the State of Maine passed a law for the inspection of lumber in Penobscot County. Grades were defined by this law for white pine as well as hemlock, spruce, and cedar.

There were four grades of pine timber, as follows:

No. 1.—All boards not less than 1 inch thick, and free from rot, sap, knots, and shakes. Provided that all such boards as are clear and over three-fourths of an inch thick may be surveyed No. 1 by making due allowance for deficiency in thickness; or No. 2 without such allowance, at the discretion of the surveyor.

No. 2.—Shall include all boards not less than 1 inch thick, free from large knots and free from shakes and knots, square-edged, and suitable for planing.

No. 3.—Shall include all boards not less than three-fourths of an inch thick, nearly free from rots, and nearly square-edged, and suitable for covering buildings.

No. 4.—Shall include all boards excluded by the other three grades.

All timber usually measured by cubic feet shall be 10 inches square or more and surveyed 40 cubic feet to the ton, and shall be distinguished in three sorts or qualities:

No. 1.—Shall be straight, sound, and square-edged, in length or joints not less than 16 feet.

No. 2.—Shall include all timber which shall be sound, but which may not be hewed or sawed to a square edge.

No. 3.—Shall include all other ton timber.

In 1845, at Danville, N. Y., white pine lumber was divided into two grades—selects and rejects. Selects included only the highest quality. The remainder went into rejects.

In 1865, at Williamsport, Pa., there were three grades—No. 1, box, and culls.

In 1874 the Chicago Lumbermen's Board of Trade published inspection rules on white pine, in which there were three grades of clear, below that one grade of select and one of common. There were three grades of flooring. Culls was the lowest grade taken. All refuse lumber was thrown into mill culls; laths and shingles were also graded.

In 1883 Capt. J. E. Meginn, of St. Paul, Minn., published a set of rules for white pine, in which grades were still further elaborated.

ASSOCIATION GRADING.

Uniform producers' grades were initiated in the white pine region and in the South at three different points at practically the same time. The system of organized inspection by associations was originated in the Lake Region. The Wisconsin Valley Association was the first to have it. But it was not until 1895 that a system of inspection was organized covering a large area. In this year the Mississippi Valley Lumbermen's Association organized a complete system of inspection, which has been largely copied by other associations. This system has met with remarkable success in holding the grades uniform throughout the territory covered. The region covered by the inspection is divided into districts, and an inspector is assigned to each. A district is covered about once in two months. At the end of each two months the inspectors are transferred to new districts. Once a year, at least, all the inspectors meet and compare notes, and so keep their ideas uniform.

At present there are in the South four leading associations for pine and one for cypress. There are two hardwood associations in the Mississippi Valley. These seven associations cover the eastern part of the United States. In the Rocky Mountain region there are the Flathead Valley Lumbermen's Board of Trade and the Western Pine Manufacturers' Association. On the Pacific coast there are four leading associations—the Pacific Coast Lumber Manufacturers' Association, the Southwestern Washington Lumber Manufacturers' Association, the Oregon and Washington Lumber Manufacturers' Association, and the Redwood Manufacturers' Association. In addition, the California Sugar and White Pine Agency, which is a selling agency, has made a set of rules and organized inspection for sugar and California white pine.

SPECIAL GRADES.

There are certain forms of lumber which the regular grades can not well cover. These include a large class of factory stock, and railroad and shipbuilding material. The material for these classes is sawed to order, and is known as "bill stuff." The consumer, in this case, sets the grades. A similar condition prevailed throughout the industry before uniform grades were established.

EXCHANGE GRADES.

Many cities have lumber exchanges with inspectors at the market used by members of the exchange. The grades followed are usually those of some lumber association. For instance, the Lumbermen's Exchange of St. Louis has adopted for hardwood the rules of the

National Hardwood Lumber Association, for yellow pine the rules of the Yellow Pine Manufacturers' Association, for cypress those of the Southern Cypress Association. The Lumbermen's Exchange of New Orleans has adopted the Gulf coast classification for pitch pine, the Cypress Association's rules for cypress, and the National Hardwood Lumber Association's rules for hardwoods.

STATE INSPECTION.

Many States have passed laws relative to measuring and inspecting lumber Massachusetts has probably the most thorough system. A surveyor-general is appointed by the governor, with power to appoint deputies. The law specifies the grades, which are in part association grades and in part local grades.

New Hampshire has defined grades and provision for inspection.

Maine has an inspector for Penobscot County, and provision for appointing inspectors in port cities where necessary.

Vermont has provision for inspection of lumber and shingles.

Rhode Island has provision for the inspection of lumber and hoops in Providence and Newport.

Minnesota, Wisconsin, Oregon, and Washington have provision for measuring logs. In Oregon this applies only to Coos and Lane counties.

Some other States have provision for appointing county or city inspectors.

UNIVERSAL GRADES.

Each grading system has grown up with the lumber industry in a more or less local way. A system was developed to supply a certain market, and the terms used in the trade have become fixed and are changed only gradually. A standard system of names for all grading systems would be very serviceable, but because of usage and custom it is hard to obtain. There is no reason, however, why a standard system of both terms and grades could not be devised and introduced gradually. The upper grades of all species could be standardized so that the only difference between them would depend on the relative quality of species. Such a system would be of immense value to architects and engineers.

The Pacific coast associations are coming together on grading specifications. The Western Pine Manufacturers' Association is strengthening its system of inspection, and so far as possible conforming its grades to those of the Northern Pine Manufacturers' Association. The North and South Carolina associations have united recently, and there is an approach toward uniform grades throughout the whole Southern pine region.

When the Mississippi Valley Lumbermen's Association desired to standardize grades in the white pine region it was thought impossible, and there was great objection to the innovation. Now the association grades are recognized throughout the country. It is economy to have uniformity, and apparently it is only a matter of time until uniform grades will prevail throughout the whole of an area producing lumber of similar character.

CALIFORNIA SUGAR AND WHITE PINE AGENCY.

Organized February, 1901, and incorporated April, 1904, as a selling agency.

Shortly after organizing, the agency established uniform grades for the two species handled. These grades were based on the eastern white pine, and are very similar to those of the Northern Pine Manufacturers' Association. The cut of the mills for 1905 whose stocks were handled through the agency were approximately 368,000,000 feet.

[Rules for grading California pine. Adopted by the California Sugar and White Pine Agency, April 1, 1903.]

GENERAL INSTRUCTIONS.

No arbitrary rules for the inspection of lumber can be maintained with satisfaction. The variations from any given rule are numerous and suggested by practical common sense, so nothing more definite than the general features of different grades should be attempted by rules of inspection. The following, therefore, are submitted as the general characteristics of the different grades.

In the grading of finishing lumber, in common practice, there is a recognized difference in classifying inch lumber and lumber thicker than inch.

A very large percentage of the 1¼, 1½, and 2 inch lumber used for finishing purposes goes into work requiring each face to be shown—as in doors, sash, etc. With inch lumber, except shop common, and partitions, the uses are quite different, the almost invariable practice being that one face of the board is shown, and that face the better one.

The face side of the lumber is the side showing the best quality or appearance.

The higher grades of lumber, except for factory purposes, should be graded on the best face, but the opposite side should, as a rule, be within one grade of the better face.

The California Sugar and White Pine Agency does not consider bright sap a defect in any of its grades of lumber.

Lumber shipped rough must be accepted on grade as shown in the rough, and not subject to any changes in grade which may be caused by future mill-working.

When lumber is sold surfaced, planing-mill work must be taken into consideration in grading all grades of dressed lumber, and its effect on a piece must be left largely to the judgment of the inspector.

The examples given in this article do not in all cases take in all of the different types in any grade.

The interpretation of any grade is intended to cover all lumber between the next higher grade and the next grade below.

CALIFORNIA SUGAR AND WHITE PINE AGENCY STANDARD GRADES.

NO. 1 AND 2 CLEAR.

Number 1 and 2 clear 1″ and thicker is sold both grades combined, and the proportion of No. 1 in grade should not be less than 25 per cent nor over 30 per cent, with the balance of 70 per cent to 75 per cent to be an average No. 2 grade.

The grade of No. 1, 1″ and thicker, should be practically free from all defects on the face side up to 16″ wide; 16″ and wider will allow some small defects, and the wider the piece the larger the defect. For example, a piece 2″x16″—12′ 14′, or 16′ might contain one small pitch-pocket ⅛ inch wide, but must not show through the piece, or a very light pitch streak, or a small knot, well placed, not over ⅝ inch in diameter. A piece 20″ wide would allow of both of above defects, and the wider the piece the more pronounced can be the defects. No. 2 clear should be practically free from all defects on the face side under 10″ wide. A 10″ piece may have one or two small defects. As width increases, larger defects are admissible, but in no case should a piece contain dog holes or a knot larger than 1½″ in diameter. A split in end of piece not longer than the width is allowable in a No. 2 clear.

EXAMPLES, NO. 2 CLEAR.

Example 1.—Piece 1x8—16. Is perfect on one side except bright sap. On the opposite side shows two small black knots ½″ in diameter.

Example 2.—Piece 1x10—16. This piece has two knots ⅝ in diameter on one side. The same knots show through on opposite side, and in addition one small pitch-pocket ¼″ wide and 2″ long.

Example 3.—Piece 1x12—16. This piece is free from knots, but shows two pitch-pockets ¼″ wide and 2″ long on one side; the other side shows a pitch-streak 2″ wide and 3′ long at one end of the piece.

Example 4.—Piece 1¼x14—16. Has one face nearly perfect, but the opposite side shows three black knots respectively ⅝″, ¾″ , and 1″ in diameter.

Example 5.—Piece 1½x16—16. This piece has an 1½-inch sound knot at one end of piece and a ¾-inch black knot at the other end. Both those knots show through on opposite side.

Example 6.—Piece 2x24—16. Piece shows three knots ⅝″ in diameter on one side, and on the reverse side shows five knots well scattered, running from ⅝″ to 1¼″ in diameter.

Example 7.—Piece 1½x24—16. Has two knots ⅝″ and two knots 1″ in diameter on one side. These knots show through on opposite side, but are slightly larger, the largest one being about 1½″ in diameter. All of these knots, though black, are comparatively sound and well scattered on face of piece.

Example 8.—Piece 2x20—16. Shows one side almost perfect, but on the opposite side there are three pitch pockets, the largest of them being ⅜″ wide and 2½″ long; the other two are ¼″ wide and 2″ long.

NO. 3 CLEAR.

No. 3 clear, as usually found in California pine, is a cutting grade and should not cut less than 70 per cent of door cuttings, as given in rules for grading No. 1 shop lumber.

While the great majority of California No. 3 is of a cutting type, there are frequently found pieces which could be used for one side finish, which might be called C Select, and this grade will admit of considerable defects if the piece retains at the same time a fair appearance. For instance, a piece might contain on the face side two or three small knots, say from ¾″ to 1¼″ in diameter and on the back side have considerable blue stain; then, again, a piece may sometimes show in cutting thicker lumber a very good face with but few defects on a wide piece, but the back shows up quite coarse. Such lumber would be admissible in this grade. Where lumber contains crossing stains, if the stain is not spread too much at either side of the crossing, such pieces would also go in this grade. In no case, however, should this C Select type of lumber be mixed in with the ordinary grade of No. 3, as it is not a cutting proposition at all.

SIDING.

GENERAL INSTRUCTIONS.

Beveled siding should be graded from the face side only. Defects on the thin edge, which will cover when laid, should not be given the same consideration as defects elsewhere. The 1 and 2 grades of beveled siding are usually combined in California grading, and are about the same as B and better grade of the Northern Pine Manufacturers' Association, with the exception that in the California grade bright sap is not considered a defect.

NO. 1 AND 2 SIDING.

No. 1 and 2 grade, or B siding and better, will admit of three or four small knots, if well located, or a pitch pocket ¼"x2" if it does not show through, or two smaller pitch pockets if considerable distance apart and not showing through piece. Pitch streaks that will not cover are not admissible in this grade.

EXAMPLES 1 AND 2 OR B AND BETTER SIDING.

Example 1.—Piece ½x6—16. Shows a pitch streak for 3′ on thin edge which covers when laid, and a pitch pocket ¼" wide by 1⅓" long, 2" from thick edge at the center of the piece.

Example 2.—Piece ½x6—16. This piece has four very small smooth knots not over ¼" in diameter within 4′ of one end near thin edge, and a ⅝" sound red knot within 2" of thick edge and 6′ from the other end of piece.

Example 3.—Piece ½x6—16. Has two ½" black knots within 3′ of one end and a ½" knot 6′ from the other end, all of which show when piece is laid.

Example 4.—Piece ½x6—16. This piece has a ½"x¾" sound knot on the thick edge, 3′ from end, and a small pitch pocket on thin edge that will cover when laid.

NO. 3 SIDING.

No. 3 or C Sidings. This grade will admit of two or three small sound knots not exceeding 1" in diameter, or more knots when they are smaller; also small pitch pockets that do not show through. A small amount of blue stain is admissible on thick edge of piece, or more blue stain is admissible if on thin edge. Will also admit of defects in occasional pieces in a shipment which can be removed with one 4" cut.

EXAMPLES NO. 3, OR C SIDING.

Example 1.—Piece ½x6—16. This piece has a sound black knot ¾" in diameter 5′ from one end. A small pitch pocket and blue stain covering face for 12" on one end.

Example 2.—Piece ½x6—16. This has a ½" black knot on thick edge 5′ from end and has blue stain 2" wide for 6′ of the piece on the thin edge.

Example 3.—Piece ½x6—16. Has a ¼" pitch pocket on thick edge that does not show through, and has also a pitch streak about 2" wide and 3′ long at the other end of the piece.

Example 4.—Piece ½x6—16. This piece has ¼" wane for 4′ on the thin edge and shows a crossing stain across face of piece.

Example 5.—Piece ½x6—16. This piece is free from knot or pitch defects, but shows crossing stains at both ends and center of piece.

Example 6.—Piece ½x6—16. This piece has a 1½" loose knot 4′ from end, but is otherwise nearly perfect. This is what is considered a cutting strip.

FACTORY LUMBER.

FACTORY PLANK.

Grades as described under this head are valued for cutting-up qualities only and should not be confounded either in quality or value with grades outlined in another part of this article for yard purposes.

Factory plank of all kinds shall be graded for the percentage of door cuttings that can be obtained. Two grades of door cuttings only shall be recognized and are to be known as No. 1 and No. 2 cuttings. The only defect admissible in No. 1 cutting is white sap. The grade of No. 1 door cuttings must be free from all other defects. The grade of No. 2 door cuttings will admit of one defect only in any one piece. This may be a small knot of sound character, not to exceed ⅝ of an inch in diameter, or the defect may be slightly stained sap which does not extend over more than one-half of the face of the piece on one side.

SHOP COMMON.

NO. 1 SHOP COMMON.

The sizes and grades of cuttings admissible in the grade of No. 1 Shop Common are as follows:

No. 1 stiles in width 5¼″ or 6″, and in length from 6′ 8″ to 7′ 6″; No. 1 rails, 9″ or 10″ wide and from 2′ 4″ to 3′ in length; No. 1 muntins 5¼″ wide and from 3′ 6″ to 4′ in length. Any number of pieces of either the stiles or rails mentioned above are admissible in the grade of No. 1 Shop Common; but only two muntins of the sizes mentioned above shall be considered, and one No. 2 door stile may also be considered in securing the required percentage of cuttings in any given plank. Each plank of No. 1 Shop Common shall contain not less than 50 per cent or not more than 70 per cent of door cuttings of the sizes and grades above mentioned.

NO. 2 SHOP COMMON.

The sizes admissible in No. 2 Shop Common are as follows:

Stiles in width 5¼″ or 6″ and from 6′ 8″ to 7′ 6″ in length; rails 9″ or 10″ in width and from 2′ 4″ to 3′ in length; top rails 5¼″ wide and from 2′ 4″ to 3′ in length. Top rails must, however, be of No. 1 door cutting quality. Muntins 5¼″ wide and from 3′ 6″ to 4′ in length. Any number of cuttings of any one of the above sizes are admissible in the grade of No. 2 Shop Common. Each piece of No. 2 Shop Common shall contain either one of the following: At least 25 per cent of No. 1 door cuttings or not less than 40 per cent of all No. 2 door cuttings, or not less than 33⅓ per cent of No. 1 and No. 2 door cuttings combined.

NOTE.—All factory plank shall be graded from the poor side, and in determining the percentages of door cuttings consideration must be given to the fact that plank are to be ripped full length in such manner as will yield the highest grade and largest percentage of door cuttings before cross cutting, except in such cases where plank will yield a higher value by being first cross cut for rails. In such instances as when stock is cross cut for rails and where some of the stock so obtained is too poor for either No. 1 or No. 2 rails, and which yet contains stiles or muntins or top rails which can be obtained by ripping this cross cut stock, the door cuttings so obtained shall be figured in when determining percentages.

INCH SHOP COMMON.

There shall be but one grade of Inch Shop Common. Inspection must be made from the poorer side, and each piece contain not less than 50 per cent of cuttings, 6″ wide or wider and 3′ long or longer, having no defects except white sap.

DRESSED GUM LUMBER MANUFACTURERS' ASSOCIATION.

Organized September 3, 1903, at Cairo, Ill.

A system of grades was there adopted and published in the American Lumberman of September 12, 1903.

The latest rules, adopted December 1, 1903, cover siding, sheathing, flooring, ceiling, partition, and finish.

[Revised and adopted by the Dressed Gum Lumber Manufacturers' Association, at Cairo, December 1, 1903.]

GRADES.

BEVELED SIDING OR WEATHERBOARDING.

No. 1 Grade will allow sound sap without limit, but is otherwise clear except small defects which the lap will cover.

No. 2 Grade may contain imperfection in working and unsound defects which can be removed in two cuts without waste of more than 10 per cent of the length of any one piece.

No. 3 Grade permits all classes of defects, but must work without waste of more than one-third of the contents of any one piece.

PATENT OR DROP SIDING, FLOORING, MATCHED SHEATHING, CEILING, AND PARTITION.

No. 1 Grade will allow sound sap without limit, but is otherwise without defects.

No. 2 Grade may contain imperfections in working and unsound defects which can be removed in two cuts without waste of more than 10 per cent of the length of any one piece.

No. 3 Grade permits all classes of defects, but must work without waste of more than one-third of the contents of any one piece.

Patent or Drop Siding may be worked any standard pattern desired, and is regularly made tongued and grooved, though may be ship-lapped if so ordered. State whether single or double cut is wanted, and when possible mail pattern with order to avoid misunderstanding.

Flooring and Matched Sheathing are dressed, both sides and center matched, a decided advantage allowing it to be used for a variety of purposes.

Ceiling is all double beaded one side only, unless otherwise ordered. In ordering special patterns of Ceiling and Drop Siding any small amount produced of different grade than specified must be taken at corresponding difference in price.

No. 1 Finish in pieces 6 to 7 inches wide is clear; pieces 8 to 10 inches may have one standard defect; pieces from 10 to 12 inches two defects; pieces 13 inches or over may have three standard defects or their equivalent in larger defects. Sound sap is not considered a defect in this grade.

No. 2 Finish is calculated to work 75 per cent clear in not over three pieces. Discolored sap, unless of an unsound nature and small pin worm holes, are not considered defects in this grade.

Is recommended more especially for shop or cutting up purposes. Also makes good Cornice Lumber.

Sheathing Boards for lining under weatherboarding, etc. Roofing Strips and Bridging Strips are practically a No. 3 grade but are sorted with a view to the purpose for which they are to be used. The principal defects are deep stain, worm holes, knots, and occasional shake.

FLATHEAD LUMBERMEN'S BOARD OF TRADE.

Up to 1901 only four grades were known in the section covered by this association: No. 1 clear, No. 2 clear, common, and culls. The first grading rules were adopted and printed by four lumber companies working in harmony—John O'Brien Lumber Company, Northwestern Lumber Company, Smith Valley Lumber Company, and the Kalispell Lumber Company. These companies are all located in the vicinity of Kalispell, Mont.

The Flathead Lumbermen's Board of Trade, as an organization, adopted its first set of grading rules, January 12, 1904. A grading bureau was established March 1, 1905. The present rules were adopted April 1, 1905.

Species are separated only in the upper grades. The lower grades, No. 1 Common, No. 1 Fencing, etc., and below, have the species mixed indiscriminately.

[Standard rules for grading northern Montana lumber. Adopted April 1, 1905, by the Flathead Lumbermen's Board of Trade.]

COMMON.

JOIST, SCANTLING, TIMBER.

No. 1 Common Joist, Scantling, Timber.—Must be of good sound character; will admit of coarser knots than 1 inch common. Some little wane edge is admissible, also sap. Generally speaking, there should be no imperfections that seriously impair the strength of the piece, or its utility.

No. 2 Joist, Scantling.—Will admit large coarse knots, not necessarily sound; wane, shake, red dozy streaks, or other defects which weaken or impair the piece to such an extent as to render it unfit for common grade.

COMMON BOARDS AND FENCING.

No. 1 Common Boards, Stock Width.—Sound, tight knotted boards, the knots being well scattered. No other serious defects, and none that materially reduce the strength or utility of the piece.

No. 2. Common Stock Width Boards.—These are generally sound, but knots are larger and more plentiful than No. 1. Some shake is admissible.

No. 3 Common Mixed Width Boards.—These boards are of coarse knotty character. They do not contain rot or worm holes, and not much shake. Some boards otherwise good have a knot hole or two. They are thoroughly serviceable for sheathing, etc.

No. 4 Common Mixed Width Boards, Random Lengths.—These boards contain all inch lumber that is imperfectly manufactured. Knot holes, wane, splits, shake, rot, and heart checks are all admissible, but no worm holes.

Note.—Blue sap stain is not a defect in common grades.

SHIPLAP, FENCING, FLOORING, DROP SIDING, ETC.

No. 1 Common Shiplap, and D. & M. Fencing.—Sound, tight knotted boards, the knots small and scattered, with edges free from holes or roughness, and mill work good.

No. 2 Common Shiplap, and D. & M. Fencing.—Boards generally sound, but knots larger and more plentiful than No. 1. Must be well milled. Considerable shake admissible. No serious defects in edges, but minor defects allowed.

GROOVED ROOFING, BEVELED WELL TUBING, ETC.

These are graded same as Shiplap and Fencing.

MONTANA LARCH, UPPER GRADES.

A Flooring, Drop Siding, Ceiling.—Has practically clear and perfect face. Mill work good on face and edges, and no defects visible when laid. Compares with Washington Fir.

B Flooring, Drop Siding, Ceiling.—Mill work good. Some knots allowed; not more than three in number, sound, and not larger than ½ inch; two knots if ¾ inch; one knot if larger. Small amount of fine shake permitted.

For lower grades see No. 1 and No. 2 Fencing.

A Beveled Siding.—Defects that will cover when laid not considered, otherwise finished face free from defects. Tied in bundles.

B Beveled Siding.—Two or three small knots not larger than ¾ inch in diameter, well scattered, slight roughness in mill work, or slight sap stain admitted. Tied.

Clear Larch.—2x4, 2x6, and 2x8, S 4 S, are free from defects except slight bright sap and slight wane.

Larch Casing and Base.—Are free from defects except slight wane. Tied.

Batts.—⅜x3 Batts S 1 S.

No. 1 made from A Larch strips. Tied.

No. 2 made from B Larch strips. Tied.

WESTERN PINE, UPPER GRADES, INCH FINISH.

"B" and Better.—Shall be perfectly bright on the face side and shall not contain more than one knot 1 inch in diameter, two less than an inch, in a piece 12 inches wide. Pitch pockets to be given the same consideration as knots. A pitch pocket 3 inches long to be considered the same as a knot 1 inch in diameter. A wider piece can contain knot defects in proportion to its width, and a narrower piece less, in the same proportion.

The reverse side of the board should be nearly as good as the face. The knots may be a little coarser, or a small amount of blue where there are no knots.

"C" Select.—In this grade more knots are admissible and also blue stain if not too pronounced. A piece 12 inches wide may have one knot 1½ inch in diameter and two or three pin knots, or in the absence of knots, light-blue sap not to extend over more than one-third of the face of the board.

"D" Select.—This grade may have the knotty defects of a C Select on its face side, in combination with a large amount of blue stain. It is graded strictly on the face side, but the reverse side must have a good bearing. Many pieces free from other defects have a blue face or too much blue to pass in C grade. There is, however, no shake to speak of in this grade and it is intended for a low-priced grade for paint work.

"D" Stock.—This grade is smooth looking, sound knotted lumber, free from wane and shake. Knots may be red or black, but sound and firmly set and not larger than one and one-half inch. This grade is an extra smooth number one common.

WESTERN PINE—THICK FINISH.

"C" Select and Better.—1¼, 1½, and 2 inch should be 6 inches and over in width. Defects allowed depend on width of piece. An extreme 1½x12–16 may contain blue sap stain if confined to the edges, not more than 2 inches wide, and three small scattered knots, or two larger ones, or several quite large ones if bunched at one end, or shake at one end not more than three feet, or any two of above defects. All boards of better quality than above described go in this grade.

"D" Select.—1¼, 1½, and 2 inch should be same width and thickness as "C" Select and Bettter. May have three knots as large as 2 inch if scattered, and larger and more numerous if bunched at end. Will admit considerable fine shake. In absence of other defects may have blue sap stain to extent of two-thirds of the face.

No. 1 Shop Common, No. 2 Shop Common.—Northern Pine Manufacturers' Association's grades.

WESTERN PINE FLOORING, DROP SIDING, CEILING.

NOTE.—In grading Flooring, Drop Siding, Rustic and Ceiling, Select, the same rules will be used that govern the grades of same name in Select Finish, except that the grade is determined from the face side only, in all except ceiling, and then only when it is specified as partition, shall the grade be determined from the poorer side; but it should always be borne in mind that the reverse side should have a good bearing surface, and nothing will be allowed in "B" and Better or "C" that would materially weaken the piece, and only in a "D" when the defect may be removed by wasting 4 inches.

WESTERN PINE BEVELED SIDING.

B or Better Siding.—Two or three small knots not to exceed one-half inch in diameter, well scattered over the face of the piece. No greater defects than above allowed in low line pieces, and all stock of better quality placed in this grade. No blue stain allowed unless on thin edge and will cover.

C Siding.—Will admit two or three small knots not exceeding one inch in diameter, or more knots if smaller. No shake is allowed, but some slightly blue stain is admitted.

D Siding.—Will admit a large amount of blue stain. With or without blue stain this grade admits a number of small knots well scattered over the face, or other defects not admissible in C siding.

NOTE 1.—A slight roughness in mill work will operate to reduce a board otherwise grading B and Better or C Select, one grade.

NOTE 2.—Slight defects which will cover when laid will not be considered when making siding grades.

STANDARD SIZES FOR MANUFACTURING NORTHERN MONTANA LUMBER.

Finished thickness of two inch dimension shall be 1¾ inches, and finished widths shall be ¼ inch less than standard rough widths.

Finished thickness common boards if worked when green shall be ⅞ inch. If worked dry one or two sides $\frac{13}{16}$ inches.

Finished thickness for finishing and select grades shall be for one inch, $\frac{13}{16}$ inch; for 1¼ inch, $1\frac{1}{16}$ inch; for 1½ inch, $1\frac{5}{16}$ inch; for 2 inch, 1¾ inch.

Finished face of four inch Flooring, Drop Siding and Ceiling shall be 3⅛ inch; and for six inch stock, 5⅛ inch face.

Finished face for Shiplap, Grooved Roofing, etc., shall be one inch less than standard board widths.

Finished thickness for—

Flooring shall be $\frac{13}{16}$ inch.
Drop Siding shall be ¾ inch.
Ceiling shall be ¾ inch or ⅝ inch.
Shiplap and Grooved Roofing shall be ¾ inch.
Beveled Well Tubing shall be $\frac{13}{16}$ inch.
Finished width for Beveled Siding shall be 3½ or 5½ inches.
Finished edges for Beveled Siding shall be $\frac{3}{16}$ for thin edge and ½ for thick edge.

[These rules cancel all former issues covering grades here mentioned.]

LARCH FINISH, FOUR INCHES AND WIDER.

These rules govern inch, one and one-fourth inch, one and one-half inch, and two-inch stock.

There is admissible in all grades end check measuring in length the width of the piece. Also small amount of fine check on reverse side.

"A."—The face of a four, six, eight, or ten-inch piece should be nearly perfect. An eight-inch or ten-inch piece will admit of one knot not to exceed one-half inch in diameter. A twelve-inch piece may contain two knots, well scattered, not exceeding one-half inch in diameter. Pieces wider than twelve inch will admit of proportionate large knot defects and a very small amount of fine check.

"B."—The face of a four or six inch piece may contain three one-half inch knots, two knots three-fourths of an inch, well placed, or one larger knot. A slight amount of fine check is also admissible, as well as slight roughness in mill work. Not a serious combination of the above defects, however. An eight-inch piece has three one-half inch knots or two larger knots not exceeding one inch in diameter. Check appears to a slightly greater extent than in six inch. A ten-inch piece admits of five one-half-inch knots. Otherwise the same as eight-inch. In twelve inch there are well scattered, seven one-half inch knots or fewer large knots, not exceeding three, in diameter one inch. Checks are admissible in greater proportion as widths increase, as well as other defects, but not in combination to any extent.

GEORGIA-FLORIDA SAWMILL ASSOCIATION.

The Georgia Sawmill Association was organized May, 1899; the name was later changed to the Georgia Interstate Sawmill Association, and its membership extended to Florida and portions of South Carolina. On July 16, 1906, the name of the association was changed to the present form. At present the region covered includes Georgia and Florida.

The first attempt to grade the lumber produced in the region occurred February 14, 1883, when the Southern Lumber and Timber Convention, at Savannah, Ga., adopted rules of inspection known as the "Savannah Rules of '83."

The Georgia Sawmill Association formulated grading rules July 22, 1902, at Tifton, Ga. These were ratified at Jacksonville, Fla., on August 26 of the same year. The Georgia Interstate Sawmill Association adopted a set of grading rules early in 1904, and again, in conjunction with several Northern lumber exchanges, on December 10, 1904. These rules became effective February 1, 1905.

The output in 1905 was 800,000,000 feet.

[Interstate rules of 1905. Classification and inspection of yellow pine lumber. Adopted by the Georgia Interstate Sawmill Association, South Carolina Lumber Association, New York Lumber Trade Association of New York City, Yellow Pine Exchange of New York City, The Lumbermen's Exchange of Philadelphia, Pa., The Lumber Exchange of Baltimore, Md. Effective on and after February 1, 1905.]

GENERAL RULES.

All lumber must be sound, commercial longleaf yellow pine (pine combining large coarse knots, with coarse grain, is excluded under these rules), well manufactured, full to size and saw butted, and shall be free from the following defects: Unsound, loose, and hollow knots, wormholes and knot holes, through shakes or round shakes that show on the surface; and shall be square edge, unless otherwise specified.

A through shake is hereby defined to be through or connected from side to side, or edge to edge, or side to edge.

In the measurement of dressed lumber the width and thickness of the lumber before dressing must be taken—less than one inch thick shall be measured as one inch.

The measurement of wane shall always apply to the lumber in the rough.

Where terms one-half and two-thirds heart are used they shall be construed as referring to the area of the face on which measured.

In the dressing of lumber, when not otherwise specified, one-eighth inch shall be taken off by each planer cut.

All lumber grading higher than the grade for which it is sold shall be accepted as of the grade sold.

CLASSIFICATION.

Flooring.—Flooring shall embrace four, five, and six quarter inches in thickness by three to six inches in width, excluding 1½x6. For example: 1x3, 4, 5, and 6; 1¼x3, 4, 5, and 6; 1½x3, 4, and 5.

Boards.—Boards shall embrace all thicknesses under one and a half inches by over 6 inches wide. For example: ¾, 1, 1¼, and 1⅜ inches thick by over 6 inches wide.

Plank.—Plank shall embrace all sizes from one and one-half to under six inches in thickness by six inches and over in width. For example: 1½, 2, 2½, 3, 3½, 4, 4½, 5, 5¼, 5¾ by 6 and over in width.

Scantling.—Scantling shall embrace all sizes exceeding one and one-half inches and under six inches in thickness, and from two to under six inches in width. For example: 2x2, 2x3, 2x4, 2x5, 3x3, 3x4, 3x5, 4x4, 4x5, and 5x5.

Dimension.—Dimension sizes shall embrace all sizes six inches and up in thickness by six inches and up in width. For example: 6x6, 6x7, 7x7, 7x8, 8x9, and up.

Stepping.—Stepping shall embrace one to two and a half inches in thickness by seven inches and up in width. For example: 1, 1¼, 1½, 2, and 2½x7, and up in width.

Rough Edge or Flitch.—Rough Edge or Flitch shall embrace all sizes one inch and up in thickness by eight inches and up in width, sawed on two sides only. For example: 1, 1½, 2, 3, 4, and up thick by eight inches and up wide, sawed on two sides only.

INSPECTION.

Standard.—All lumber shall be sound, sap no objection. Wane may be allowed one-eighth of the width of the piece measured across face of wane, extending one-fourth of the length on one corner, or its equivalent on two or more corners, provided that not over 10 per cent of the pieces of any one size shall show such wane.

Merchantable.—All sizes under nine inches shall show some heart entire length on one side; sizes nine inches and over shall show some heart the entire length on two opposite sides. Wane may be allowed one-eighth of the width of the piece measured across face of wane, and extending one-fourth of the length of the piece on one corner or its equivalent on two or more corners, provided that not over 10 per cent of the pieces of any one size shall show such wane.

Prime.—Flooring shall show one heart face, free from through or round shakes or knots exceeding one inch in diameter or more than four in a board on the face side.

Boards seven inches and under wide shall show one heart face; over seven inches wide shall show two-thirds heart on both sides; all free from round or through shakes, large or unsound knots.

Plank seven inches and under wide shall show one heart face; over seven inches wide shall show two-thirds heart on both sides; all free from round or through shakes, large or unsound knots.

Scantling shall show three corners heart, free from through or round shakes or unsound knots.

Dimension sizes.—All square lumber shall show two-thirds heart on two sides and not less than one-half heart on two other sides. Other sizes shall show two-thirds heart on face and show heart two-thirds of length on edges, excepting when the width exceeds the thickness by three inches or over; then it shall show heart on the edges for one-half the length.

Stepping shall show three corners heart, free from shakes and all knots exceeding half inch in diameter, and not more than six in a board.

Rough Edge or Flitch shall be sawed from good heart timber, and shall be measured in the middle on the narrow face, free from injurious shakes or unsound knots.

Wane on not over 5 per cent of the pieces in any one size shall be allowed as on merchantable quality.

GULF COAST LUMBERMEN'S ASSOCIATION.

This association has been disbanded. Rules which it published, however, are still in use. These rules are used to a great extent for export trade.

[The Gulf Coast Classification of Pitch Pine Resawn Lumber. Revised January 7, 1897. Superseding classifications of February 13 and July 2, 1896. Also, Mobile and Pensacola Classifications of Sawn Timber.]

GENERAL RULES.

1. The term "resawn lumber" shall include all of the sizes referred to in this classification.

2. All Resawn Lumber must be sound, well manufactured, evenly sawn, square butted with saw, square edge unless otherwise specified, free from unsound, loose or hollow knots, worm and knot holes, through splits and through shakes.

3. Unless otherwise specified lumber shall be twelve feet and up long. All fractional sizes not herein otherwise provided for shall be classed and inspected as the next lower size if the fraction is less than half the difference between the two sizes given in the classification, but if it is half the difference or more it shall be classed as the next size above. All sizes 1 inch or less in thickness shall be counted as 1 inch thick.

4. In the measurement of dressed lumber, the width and thickness of the lumber before dressing must be taken, less than 1 inch thick being considered 1 inch.

5. When the term "per cent" is used, reference is made to pieces; for example "eighty per cent free from knots," means that eighty out of every 100 pieces shall be free from knots.

6. The limitation as to size and number of knots refers to the heart face. In the measurement of knots the average diameter must be taken. The distribution of knots need not be proportionate, i. e., one knot to each six feet or fraction thereof means that a piece 24 feet long may have four knots anywhere in the piece and not one knot in each separate 6 feet. The allowance of one knot 1½ inches diameter to 6 feet means that the piece may have one knot 1½ inches or a greater number of less than 1½ inches, but not exceeding the equivalent. In the limitations as to size, number, and percentage free from knots, no account shall be taken of knots one-half (or less) of the diameter of the maximum knot allowed in the grade, or, if no knots are allowed, of the maximum knot in the next grade below. Provided that knots covered by this exception shall not exceed three-fourths of an inch in diameter.

7. In Dimension where wane is allowed, it shall not exceed one inch wide on the smallest size, allowing half inch increase to every inch increase in the dimension. Wane allowed may be anywhere on the corner and need not be continuous, but the aggregate must not exceed the total allowance. The larger dimension of the piece must be taken in the calculation of wane. Wane shall be measured across its face.

8. When there is a percentage free from knots or centers, reference is made to the least thickness, the percentage to be decreased 10 for each inch increase in the thickness, and proportionately for fractions of inches.

FLOORING.

Sizes.—1x3, 1x3½, 1x4, 1x4½, 1x5, 1x6,1x7.
1¼x3, 1¼x3½, 1¼x4, 1¼x4½, 1¼x5, 1¼x6, 1¼x7.
1½x3, 1½x4, 1½x5, 1½x6.
1¾x3, 1¾x4, 1¾x5, 1¾x6.

Grades.—Rift, Special, Extra, Prime, Heart, Standard, Merchantable, and Square Edge.

Rift.—No. 1. Must be all heart with exception of one inch sap on one corner, rift grain the entire length, free from splits, shakes, and knots, and the heart face free from pitch pockets and resin streaks.

No. 2. Must be one heart face, rift grain the entire length, free from splits, shakes, and knots exceeding one-half inch. Provided, that 50 per cent shall be free from knots, pitch pockets, and resin streaks on the heart face.

Special.—Must be bright, one heart face, free from splits, shakes, and centers. Not to have more than one knot 1 inch on the 3, 3½, 4, and 4½ inch, or one knot 1¼ inch on the 5, 6 and 7 inch to each 6 feet or fraction thereof, provided, that 90 per cent shall be free from knots.

Extra.—Must be one heart face, free from pith on the faces, splits, and shakes, and Prime as to knots, except that 80 per cent shall be free from knots.

Prime.—Must be one heart face, and show heart the entire length on other face, free from pith on the faces, splits, and shakes. Not to have more than one knot 1 inch on the 3, 3½, 4 and 4½ inch, or one knot 1¼ inches on the 5, 6 and 7 inch to each 6 feet or fraction thereof, provided that 70 per cent shall be free from knots.

Heart.—Must be all heart.

Standard.—Must be one heart face.

Merchantable.—Must be one heart face with exception of ½ inch sap on the 3 and 4 inch, or 1 inch on the 5, 6 and 7 inch. Not to have more than one knot 1 inch on the 3, 3½, 4, and 4½ inch, or one knot 1¼ inches on the 5, 6 and 7 inch to each 6 feet or fraction thereof.

Square Edge.—General Rules, second paragraph.

NOTE.–Merchantable corresponds to New York merchantable siding.

BOARDS AND PLANKS.

Sizes of Boards.—
1x8 and up.
1¼x8 and up.
1½x7 and up.
1¾x7 and up.

Sizes of Planks.—
2x7 and up.
2¼x7 and up.
2½x7 and up.
2¾x7 and up.

Grades.—Stepping, Special, Extra, Prime, Heart, Standard, Merchantable, and Square Edge.

Stepping.—Must be three corners heart, free from pith on the faces, splits, and shakes. Not to have more than one knot ½ inch on the 7 to 10 inch, or one knot ¾ inch on the 11 inch, and up to each 6 feet or fraction thereof. Provided, that 50 per cent shall be free from knots.

Special.—*Boards*—Must be bright, one heart face, except sap 1 inch wide, free from splits, shakes, and centers. Not to have more than one knot 1 inch on the 7 to 10 inch, or one knot 1¼ inches on the 11 inch and up to each 6 feet or fraction thereof. Provided, that 90 per cent shall be free from knots. *Planks*—Must be bright, one heart face, except sap 1 inch wide, free from splits, shakes and centers. Not to have more than one knot 1¼ inches on the 7 to 10 inch, or one knot 1½ inches on the 11 inch and up to each 6 feet or fraction thereof. Provided, that 80 per cent shall be free from knots.

Extra.—Must be Prime, provided that 70 per cent shall be free from knots.

Prime.—*Boards*—Must be one heart face and two-thirds heart surface on other face, to show heart the entire length, free from pith on the faces, splits and injurious open shakes. Not to have more than one knot 1¼ inches on the 7 to 10 inch, or one knot 1½ inches on the 11 inch and up to each 6 feet or fraction thereof. *Planks*—Must be one heart face and two-thirds heart surface on other face, to show heart the entire length, free from pith on the faces, splits, and injurious open shakes. Not to have more than one knot 1½ inches on the 7 to 10 inch, or one knot 1¾ inches on the 11-inch and up to each 6 feet or fraction thereof.

Heart.—Must be all heart.

Standard.—Must be one heart face and two-thirds heart surface on other face; except that the 12-inch may have 1 inch sap on each edge of the heart face and 13-inch and up 1½ inches.

Merchantable.—The 7 to 9 inch must be one heart face and show heart on other face, and the 10-inch and up must be two-thirds heart surface on both faces.

Square Edge.—General Rules, second paragraph.

Note.—Standard 7 to 9 inch and Merchantable 10-inch and up correspond to Savannah Merchantable.

DEALS.

Sizes.—

3x9 and up.
4x9 and up.
5x9 and up.
6x9, 6x10, 6x11, 6x12, 6x13.

Grades.—Choice, Special, Extra, Prime, Heart, Standard, Merchantable, and Square Edge or Stowage.

Choice.—Must be one heart face and two-thirds heart surface on other face, to show heart the entire length, free from splits and injurious open shakes, and 80 per cent free from centers. Not to have more than one knot 1½ inches on the 3 and 4 inch, or one knot 1¾ inches on the 5 and 6 inch to each 6 feet or fraction thereof.

Special.—Must be bright, one heart face, free from splits, shakes, and centers. Not to have more than one knot 1½ inches on the 3 and 4 inch, or one knot 1¾ inches on the 5 and 6 inch to each 6 feet or fraction thereof, provided that 70 per cent shall be free from knots.

Extra.—Must be Prime, provided that 60 per cent shall be free from knots, and 80 per cent free from centers.

Prime.—Must be one heart face, and two-thirds heart surface on other face, to show heart the entire length, free from injurious open shakes, and knots exceeding 2 inches on the 3 and 4 inch, or 2¼ inches on the 5 and 6 inch.

Heart.—Must be all heart.

Standard.—Must be one heart face and two-thirds heart surface on other face; except that the 12-inch may have 1 inch sap on each edge of the heart face and the 13-inch and up 1½ inches.

Merchantable.—The 9-inch must be one heart face and show heart on other face, and the 10-inch and up must be two-thirds heart surface on both faces.

Square Edge or Stowage.—General Rules, second paragraph.

Note.—Standard 9 inches, and Merchantable 10 inches and up correspond to Savannah Merchantable.

SCANTLING.

Sizes.—

2x2, 2x3, 2x4, 2x5, 2x6.
3x3, 3x4, 3x5, 3x6, 3x7, 3x8.
4x4, 4x5, 4x6, 4x7, 4x8.
5x5, 5x6, 5x7, 5x8.

Grades.—Decking, Special, Extra, Prime, Heart, Standard, Merchantable, and Square Edge.

Decking.—Must be all heart, free from splits, shakes, centers, and corner knots. The 2x2, 2x3, and 2x4 to have no knots exceeding ¾ inch, the 2x5, 2x6, 3x3, 3x4, 3x5, and 3x6 exceeding 1 inch, and other sizes exceeding 1½ inch.

Special.—Must be bright, three corners heart, free from splits, shakes, and centers. The 2x2, 2x3, and 2x4 to have no knots exceeding 1 inch, the 2x5, 2x6, 3x3, 3x4, 3x5, and 3x6 exceeding 1¼ inches and the other sizes exceeding 1¾ inches. Provided that 80 per cent shall be free from knots.

Extra.—Must be three corners heart and have not more than 1 inch sap on the other corner, free from splits and injurious open shakes. The 2x2, 2x3, and 2x4 to have no knots exceeding 1¼ inches, the 2x5, 2x6, 3x3, 3x4, 3x5, and 3x6 exceeding 1½ inches and the other sizes exceeding 2 inches.

Prime.—Must be three corners heart.

Heart.—Must be all heart.

Standard.—Must be one heart face, and one edge two-thirds heart surface, showing heart the entire length.

Merchantable.—Must show heart on two sides the entire length.

Square Edge.—General Rules, second paragraph.

NOTE.—Extra corresponds to Savannah Prime, and Prime to Savannah Merchantable.

DIMENSION.

Sizes.—

A.	B.		C.
6x6,	6x7,	6x8,	6x9 and up.
7x7,	7x8,	7x9,	7x10 and up.
8x8,	8x9,	8x10,	8x11 and up.
9x9,	9x10,	9x11,	9x12 and up.
10x10,	10x11,	10x12,	10x13 and up.
11x11,	11x12,	11x13,	11x14 and up.
12x12,	12x13,	12x14,	12x15 and up.
13x13,	13x14,	13x15,	13x16 and up.
Etc.,	Etc.,		Etc.

Grades.—Choice, Special, Extra, Prime, Heart, Standard, Merchantable, and Square Edge.

Choice.—*Sizes A.*—The sap on each corner shall not exceed one-sixth the width of the face.

Sizes B.—On wide faces the sap on each corner shall not exceed one-sixth the width of the face, and narrow faces shall show half heart the entire length.

Sizes C.—On wide faces the sap on each corner shall not exceed one-sixth the width of the face, and narrow faces shall show heart the entire length.

Special.—Must be bright, the sap on each corner not to exceed one-sixth the width of the face, free from splits and shakes, and the 6 and 7 inch free from centers and knots exceeding 2 inches.

Extra.—Must show two-thirds heart surface on two sides and show heart the entire length on all four sides.

Prime.—*Sizes A.*—Must show two-thirds heart surface on two sides, and not less than half heart surface on two other sides.

Sizes B.—Must show two-thirds heart surface on faces, and show heart two-thirds of the length on edges.

Sizes C.—Must show two-thirds heart surface on faces, and show heart half the length on edges.

Heart.—Must be all heart.

Standard.—Must show two-thirds heart surface on two sides, and show heart half the length on other two sides. Sizes 10 inches and over may have wane one-fifth the length on one corner, or one-tenth on two corners.

Merchantable.—Must be square edge except that sizes 10 inches or over may have wane one-third the length on one corner, or one-sixth on two corners, or one-ninth on three corners.

Square Edge.—General Rules, second paragraph.

NOTE.—Choice corresponds to Savannah Prime, and Prime to Savannah Merchantable.

KILN-DRIED SIDINGS.

Sizes.—

1x3, 1x4, 1x5, 1x6, 1x7.
1¼x3, 1¼x4, 1¼x5, 1¼x6, 1¼x7.

Grades.—No. 1 and No. 2.

No. 1.—Must be free from splits and edge knots. Not to have more than one knot 1 inch on the 3 and 4 inch, or one knot 1¼ inch on the 5, 6, and 7 inch to each 6 feet or fraction thereof. Provided, that 90 per cent shall be free from knots and sap stains on one face.

No. 2.—Must be free from splits and knots exceeding 1 inch on the 3 and 4 inch or 1¼ inches on the 5, 6, and 7 inch. Provided, that 80 per cent shall be free from knots and sap stains on one face. May have 1½ inches of wane on one corner extending on edge three-eighths of an inch.

AIR-DRIED SAPS.

Sizes.—

1x3, 1x4, 1x5, 1x6, 1x7.
1¼x3, 1¼x4, 1¼x5, 1¼x6, 1¼x7.

Grades.—Standard.

Standard.—Must be free from splits and knots exceeding 1 inch on the 3 and 4 inch, or 1¼ inches on the 5, 6 and 7 inch. Provided, that 80 per cent shall be free from knots on one face. May have 1½ inches of wane on one corner, extending on edge three-eighths of an inch.

MERCHANTABLE SAWN TIMBER.

FERRY PASS CLASSIFICATION.

Eleven inches and under.—One and one-half inches wane in widest place, not to exceed one-third length of stick on one corner, or, if on more than one corner, one-third length in the aggregate.

From 12 to 14 inches.—Two and one-half inches wane not to exceed one-third length of stick on one corner, or, if on more than one corner, one-third length in the aggregate.

Fifteen inches and up.—Three and one-half inches wane not to exceed one-third length of stick on one corner, or, if on more than one corner, one-third length in the aggregate.

Must show heart on all four sides, be smooth butted, well manufactured, sound and free from all injurious defects, in the discretion of the inspector. Discretion is allowed the inspector in the matter of allowing more aggregate length where wane is smaller than the above.

SAWN TIMBER CLASSIFICATION.

[Adopted at Mobile, Ala., January 3, 1900. Superseding all former Classifications.]

Merchantable sawn timber.—Shall show heart on all four sides.

All timber.—Shall be free from injurious defects, such as rot, red heart, rosin shakes, and injurious wind shakes extending to the surface; all corner defects to be classed as wane and treated as such. Other defects, such as wormholes, hollow and unsound knots, and cat faces, to be left to the judgment of the inspector.

Eleven inches and under.—One and one-half inches wane in widest place, not to exceed one-third length of stick on one corner, or, if on more than one corner, one-third length in the aggregate.

From 12 to 14 inches.—Two and one-half inches wane, not to exceed one-third length of stick on one corner, or, if on more than one corner, one-third length in the aggregate.

15 inches and up.—Three and one-half inches of wane, not to exceed one-third length of stick on the corner, or, if on more than one corner, one-third length in aggregate.

All timber.—Shall be sound and well manufactured, and square butted with saw at both ends.

Sawn timber shall be measured on smallest dimension to full inches, lengths to be taken in full feet within pin holes.

Sawn timber shall be sold on a basis of a price per cubic foot of merchantable sawn timber for 40 feet cubic average rising or falling respectively half cent per cubic foot in every two and a half feet of larger or smaller cubic average.

Wane that a ⅝-inch hook will catch not to be considered as wane.

HARDWOOD MANUFACTURERS' ASSOCIATION OF THE UNITED STATES.

Organized June 3, 1902, at Louisville, Ky., when a set of grading rules was adopted. On September 5, 1903, the rules were adopted by the surveyor-general of Massachusetts.

[Association standard grades of hardwood, poplar, cottonwood, and gum. Classification, official grading, and inspection rules of the Hardwood Manufacturers' Association of the United States. Edition of June, 1902. Copyrighted 1902 by the Hardwood Manufacturers' Association of the United States.]

Rules and general instructions for the inspection and the measurement of white oak, plain; white oak, quartered; red oak, plain; red oak, quartered; ash; sycamore, plain; sycamore, quartered; hickory, pecan, beech, basswood, maple, rock elm, soft elm, birch, butternut, walnut, cherry, chestnut, and hardwood dimension material.

1. The inspection of lumber is largely a matter of judgment, and these rules are intended to define in a general way such inspection.

2. Exceptions to the general rule of grading will be found under the heading for each kind of lumber.

3. Lumber must be inspected and measured as the inspector finds it, of full length and width. He shall make no allowance for the purpose of raising the grade.

In inspecting all lumber both sides of the piece shall be taken into consideration in making the grade, bearing in mind that 90 per cent of all lumber only shows one face when finished.

4. Lumber shall be well manufactured, of even thickness, and have parallel edges, and all ragged and bad ends shall be trimmed off.

5. Tapering lumber shall be measured at one-third the length of the board from the narrow end, excepting Dimension Strips, which shall be measured at the narrow end.

6. All lumber shall be tallied surface or face measure, the tally counted up, and the one-quarter or one-half added to the total where the lumber is one and one-quarter or one and one-half inches thick, and two inches and thicker to be multiplied by the thickness.

In the measurement of all lumber, fractions exactly on the one-half foot are to be given alternately to the buyer and seller; the fractions below the one-half foot are to be dropped, and all fractions above the half foot are to be counted to the next higher figure on the board rule.

7. The standard lengths are four to sixteen feet. Standard thicknesses are ⅜, ½, ⅝, ¾, 1, 1¼, 1½, 2, 2½, 3, and 4 inches when dry.

STANDARD DEFECTS.

8. Each one of the following items constitute a standard defect:

(*a*) One knot one and one-quarter inches in diameter.

(*b*) Two knots not exceeding in extent one standard knot.

(*c*) Worm holes, grub holes, or rafting-pin holes not exceeding in extent or damage one standard knot.

(*d*) Heart, shakes, rot, or dote not exceeding in extent or damage one standard knot.

(*e*) Splits are not to exceed twelve inches in length in firsts or one-sixth the length of the piece in seconds. In the aggregate not more than 20 per cent of the whole in either quality may be so split.

(*f*) Sap to one-fifth the width of the board in the aggregate.

(*g*) One bark edge or wane not to exceed one inch in the aggregate, running not to exceed one-third the length of the board and only showing on one side, and to be measured.

EXPLANATIONS OF STANDARD DEFECTS.

9. (*a*) Ordinary season checks are not to be considered defects.

(*b*) Black stain is not a defect if planing it once will remove it.

(*c*) Sap shall be considered bright that will show bright after planing.

(*d*) Splits that do not diverge more than one inch for each foot in length are straight splits.

(*e*) A straight split not exceeding six inches in length in one end of a piece of lumber, eight inches and over wide, shall not be considered a defect.

(*f*) Sound heart in firsts and seconds if longer than the width of the piece will reduce it to the next lower grade.

(*g*) In grades below first and second, boards with one clear face eight inches and over wide shall be raised one grade.

(*h*) The location of defects in a piece has much to do with its value, and should have great weight in deciding the grade.

(*i*) Wide pieces of lumber that would take two or three standard knots may have one large knot, equal to two or three standard knots if there are no other defects.

(*j*) The rules for the inspection of lumber are intended to define the poorest piece that will go in a given grade. Where the defects are slightly beyond the specifications, making it a line board, twelve foot and longer lengths should be given advantage in grade; ten foot and shorter lengths reduced.

(*k*) All widths and lengths mentioned in these rules shall be inclusive.

STANDARD GRADES.

FIRSTS AND SECONDS.

Firsts and Seconds are combined as one grade.

Firsts shall be six inches and over wide, ten, twelve, fourteen, and sixteen feet long, and free fom all defects except in pieces eight inches and over wide, which will admit of one standard defect.

Seconds are six inches and over wide, eight to sixteen feet long; six and seven inches wide will admit of one standard defect; pieces eight, nine, and ten inches wide will admit of two standard defects; pieces eleven, twelve, and thirteen inches wide will admit three standard defects, except 10-foot lengths which will admit two defects. As widths increase defects may increase in proportion. This grade will admit 15 per cent of ten-foot and 5 per cent of eight-foot lengths. Eight-foot lengths must grade first in quality.

NO. 1 COMMON.

The lengths are six to sixteen feet, not to exceed 10 per cent of six-foot lengths. The widths are four inches and over.

Four and five inches will admit one standard knot or equal defects.

Six to eleven inches wide, eight and ten feet long, must work two-thirds clear face in not over two pieces.

Twelve inches and over wide, eight and ten feet long, must work two-thirds clear face in not over three pieces.

Six to eleven inches wide, twelve feet and over long, must work two-thirds clear face in not over three pieces.

Twelve inches and over wide, twelve feet and over long, must work two-thirds clear face in not over four pieces.

No piece or cutting to be considered which is less than four inches wide and three feet long, but as the width increases the length may decrease, but the shortest cutting to be considered must be eighteen inches long and not less than eight inches wide. Two-thirds of this grade must be six inches and over wide. Pieces six feet long must be clear up to 8 inches wide; over 8 inches wide will admit one standard defect.

NO. 2 COMMON.

The lengths are four to sixteen feet. The widths are three inches and over. Pieces four feet long must be clear. Pieces six feet long and longer must cut 50 per cent clear faced.

No piece or cutting to contain less than one foot face measure.

NO. 3 COMMON.

The lengths are four to sixteen feet. The widths are three inches and over, and must contain at least 25 per cent clear face cutting. No piece or cutting to contain less than one-half foot face measure.

NO. 4 COMMON.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for cheap fencing, boxing, sheathing, etc.

There shall be no clear cutting required in this grade.

Sound wormholes are not to be considered defects.

SCOOTS.

Shall include all lumber which falls below No. 4 Common.

LOG RUN.

Means the full run of the log with all grades below No. 3 Common out.

COMMON AND BETTER.

Means the full run of the log with all grades below No. 1 Common out. This grade must contain at least 25 per cent of Firsts and Seconds.

SPECIAL INSPECTION.

Lumber sawed for specific purposes, such as axles, bolsters, tongues, reaches, etc., must be inspected with a view to the adaptibility of the piece for its intended use, because in most cases it can not be used for other purposes.

CAR AND DIMENSION OAK.

The standard lengths for this stock are as follows: 8, 9, 10, 12, 14, and 16 feet.

Dimension sawed Common oak plank and timbers used for car and building purposes must be free from wind shakes, dry rot, rotten knots, or defects which impair the strength of the piece. Sound hearts in this material shall be considered no defect.

PLAIN SAWED RED AND WHITE OAK.

This is in connection with the rules on pages 26 and 27.

Firsts and Seconds.—Bright sap up to one-half of the width of the board in the aggregate on one side is not a defect.

Common.—Bright sap is no defect in Common grade.

Clear Face Strips.—Eight to sixteen feet. 2½, 3, 3½, 4, 4½, 5, and 5½ inches wide must show one face clear of all defects except bright sap, which shall not be considered a defect.

QUARTER SAWED RED AND WHITE OAK.

This is in connection with the rules on pages 26 and 27.

Firsts and Seconds.—One inch of bright sap is not a defect in pieces eight inches and over wide.

Common.—Four inch pieces allow one standard defect. Five inch pieces allow two standard defects. Bright sap is no defect.

Clear Face Strips are 8 to 16 feet long, 2½, 3, 3½, 4, 4½, 5, and 5½ inches wide, and must show one face clear of all defects, except one-half inch of bright sap.

Common Strips are six feet and over long, not to exceed 40 per cent shorter than twelve foot and must work two-thirds clear face in not more than two pieces; no cutting to be less than four feet long by the full width of the piece. Bright sap is no defect in this grade.

NOTE.—Stain and streaks in quarter sawed oak will often reduce it below the grade of Firsts and Seconds, and inspectors are cautioned to be careful in estimating such defects.

All quarter sawed oak must show figure on one face.

Ten per cent of scant lumber allowed if not more than one-sixteenth of an inch scant on the heart edge, if the sap edge is full thickness.

ASH.

This is in connection with the rules on pages 26 and 27.

Firsts and Seconds.—Bright sap is no defect. Five-inch widths admitted when the length is eighteen feet and over.

Clear Face Strips.—Same as plain oak.

QUARTER SAWED SYCAMORE.

This is in connection with the rules on pages 26 and 27.

Common.—Bright sap no defect.

PLAIN SAWED SYCAMORE.

This is in connection with the rules on pages 26 and 27.

Bright sap is no defect in any grade.

HICKORY AND PECAN.

This is in connection with the rules on pages 26 and 27.

Firsts and Seconds.—Bright sap is no defect. Pieces four and five inches wide in this grade must be clear.

BEECH, BASSWOOD, MAPLE, ROCK ELM AND SOFT ELM.

This is in connection with the rules on pages 26 and 27.

Bright sap is no defect in any grade.

BIRCH.

This is in connection with the rules on pages 26 and 27.

Bright sap is no defect in any grade.

Red birch shall not be less than 75 per cent red on face side.

Four and five inch strips shall have one face all red.

BUTTERNUT.

Standard grading.

WALNUT.

This is in connection with the rules on pages 26 and 27.

Standard grading applies.

Forty per cent eight, nine, and ten foot allowed in Firsts and Seconds.

CHERRY.

This is in connection with the rules on pages 26 and 27.

Gum spots reduce the piece one grade, when their damage exceeds one-sixth of the surface of the piece; when their damage exceeds one-third of the surface the piece shall be reduced two grades.

CHESTNUT.

This is in connection with the rules on pages 26 and 27.

Firsts and Seconds.—Standard grading applies up to twelve inch widths, as widths increase defects may increase in proportion, provided the piece will cut 80 per cent clear in two cuttings, either crosswise or lengthwise, in full lengths or widths of the piece.

Worm holes that are bunched so that their damage will not exceed in extent the number of standard knots allowed in the piece will be admitted.

No. 1 Common, standard grading applies.

No. 3 Common, worm holes admitted in this grade without limit, but must cut two-thirds regardless of worms.

HARDWOOD DIMENSION MATERIAL.

HICKORY RIM STRIPS.

Second Growth shall be all white, straight grained, heavy, tough and clear.

Black Hickory shall be equal in grade to Second Growth, with the exception of color, admitting red and medium weight white.

Forest Growth to consist of the light weight wood that will not go in the above grades, and will admit of small bird pecks, black streaks and small knots; will admit any rims that will bend to a perfect circle without breaking.

Axle Caps and **Singletrees** admit the same defects as the same grades of Rim Strips.

OAK CHAIR STOCK.

To be of uniform thickness and width the entire dimension. All stock to be clear one side, two edges and two ends, except Chair Back Stock, which must be clear two sides, two edges and two ends. Bright sap is no defect in any Chair Stock.

OAK AND HICKORY WAGON AND IMPLEMENT STOCK.

Bright Sap no Defect.

Reaches to be clear.

Poles to be clear for a length of 11 feet.

Axles to be free from rot, knots, shakes and splits for a length of 5 feet 6 inches, but to permit of bird pecks, streaks and one-half inch of wane.

Bolsters, clear of knots, shakes and splits, but knots that will work out in finishing should not be considered by the inspector.

Hounds, clear of any defect impairing the strength of the piece.

Felloes clear on all sides, except the tread, where slight defects allowed, if not affecting the strength of the piece.

Plow Handle Strips must be clear.

Doubletrees, Singletrees and **Neckyokes** for agricultural work will admit bird pecks, streaks and solid knots that will not impair the strength of the piece.

POPLAR.

[Official classification, grading and inspection rules for the measurement of poplar lumber. Adopted at Louisville, Kentucky, June 3, 1902.]

GRADES AND NOMENCLATURE.

The following are the standard grades of poplar lumber adopted, and the terms by which they are to be known:

ROUGH STOCK.

Grades.	Standard thicknesses.
Panel	5/8 inch and 1 inch.
Wide, No. 1	5/8 inch and 1 inch.
Wide, No. 2	5/8 inch and 1 inch.
Firsts and seconds are a combined grade	Standard.
Wagon-box boards	1 inch.
Selects	1 inch to 4 inches.
Saps	5/8 inch to 2 inches.
No. 1 Common	5/8 to 4 inches.
No. 2 Common	5/8 to 4 inches.
No. 3 Common	5/8 to 4 inches.
No. 4 Common	5/8 to 4 inches.

QUARTERED POPLAR.

Firsts and seconds are a combined grade	1 and 1¼ inches.
Common.	

STRIPS.

A, B, and C	1 inch.

SQUARES.

Firsts and seconds are a combined grade	4x4, 5x5, 6x6, 7x7, 8x8, 9x9, 10x10, and 12x12 inches.
Common.	

GENERAL INSTRUCTIONS.

1. The question of grading and inspecting Poplar Lumber is so much a matter of judgment to the inspector, as each piece comes before him, that no definite and positive rules can be laid down on paper by which any piece or any thousand feet can be inspected.

2. The variety of defects, their size and location upon a piece have such relations to each other that the inspector necessarily must depend upon his own judgment in grading, guided by the following rules, so far as they will apply practically.

3. Lumber must be inspected and measured as the inspector finds it, of full length and width. He shall make no allowance for the purpose of raising the grade.

4. In inspecting all lumber both sides of the piece shall be taken into consideration in making the grade, bearing in mind that ninety per cent of all lumber only shows one face when finished.

5. Lumber shall be well manufactured, of uniform thickness, having parallel edges, and all ragged and bad ends shall be trimmed off.

6. Tapering lumber shall be measured at one-third the length of the board from the narrow end, excepting Dimension Strips, which shall be measured at the narrow end.

7. All lumber shall be tallied surface or face measure, the tally counted up, and the one-quarter or one-half added to the total where the lumber is one and one-quarter or one and one-half inches thick, and two inches and thicker to be multiplied by the thickness.

8. In the measurement of all lumber, fractions exactly on the one-half foot are to be given alternately to the buyer and seller; the fractions below the one-half foot are to be dropped, and all fractions above the one-half foot are to be counted to the next higher figure on the board rule.

9. Splits that do not diverge more than one inch for each foot in length are to be considered straight splits.

10. A straight split not exceeding six inches in length in one end of a piece of lumber eight inches and over wide shall not be considered a defect.

11. Wide pieces of lumber that would take two or three standard knots may have one large knot equal to two or three standard knots.

12. Sap should be considered bright that will show bright after dressing.

13. The location of defects in a piece of lumber has much to do with its value, and should have great weight in deciding the grade.

14. Lumber shipped rough must be accepted on grades as shown in the rough, and not subject to any changes which may be caused by future mill working, excepting as to the stained sap as heretofore stated.

15. The face side of lumber is the side showing the best quality or appearance.

16. All widths and lengths mentioned in these rules shall be inclusive.

17. In the absence of eight foot lengths in the grades where same is allowed, the per cent of ten foot may be increased proportionately.

18. The rules for the inspection of lumber are intended to define the poorest piece that will go into a given grade. Where the defects are slightly beyond the specifications, making it a line board, fourteen feet and longer should be given advantage in grade, and twelve feet and shorter reduced.

19. All lumber less than one inch in thickness shall be measured surface or face measure.

20. The standard thicknesses are $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3 and 4 inches.

21. The standard lengths are as designated under the heading of each grade.

STANDARD DEFECTS.

22. Each one of the following items constitute a standard defect:

(*a*) Standard knot one and one-quarter inches in diameter.
(*b*) Two knots not exceeding in extent or damage one standard knot.
(*c*) Worm or grub holes not exceeding in extent or damage one standard knot.
(*d*) Rafting pin holes not exceeding in extent or damage one standard knot.

(*e*) Sap to one-fifth of the width of the piece in the aggregate, unless otherwise stated.

(*f*) One bark edge or wane not to exceed one inch in the aggregate, running not to exceed one-third the length of the board and only showing on one side, and to be measured.

(*g*) Other standard defects as designated under the heading of each grade.

STANDARD GRADES.

PANEL.

Lengths, 10 to 20 feet, admitting ten per cent of 10 feet.

Widths, 18 to 23 inches, 24 to 27 inches, and 28 inches and over.

Thicknesses, ⅝ inch and 1 inch.

Seventy-five per cent of the total quantity must be clear of knots on both sides, admitting two inches of bright sap on each edge; the balance of the quantity may contain three defects provided ninety per cent of the piece can be used for Panels four feet and longer in the full width of the board. Two inches of bright sap on each edge admitted, and splits six inches long in one end not to be considered a defect in any board; splits longer than six inches not to be admitted.

WIDE, NO. 1.

Lengths, 12 to 20 feet, admitting 10 per cent of 10 feet.

Widths, 18 to 23 inches, 24 to 27 inches, and 28 inches and over.

Thicknesses, ⅝ inch and 1 inch.

In boards 18 to 23 inches 50 per cent of bright sap will be admitted provided there are no knots, otherwise three standard defects admitted. In boards 24 inches and over, bright sap shall not be considered a defect, and these widths will admit three standard defects, separate or bunched, in addition thereto.

Splits admitted not to exceed 15 inches in not to exceed 10 per cent of the pieces.

WIDE, NO 2.

Lengths, 12 to 20 feet, admitting 10 per cent of 10 feet.

Widths, 18 to 23 inches, 24 to 27 inches, and 28 inches and over.

Thicknesses, ⅝ inch and 1 inch.

Bright sap no defect.

Eighteen inches may contain five standard defects and one additional defect for each 2 inches of additional width.

Splits equal in length to width of the board are admitted in not to exceed 10 per cent of boards, and are counted as a defect.

FIRSTS AND SECONDS.

Lengths, 10 to 20 feet, admitting not to exceed 15 per cent of 10 feet.

Widths, 7 to 17 inches.

Standard thicknesses.

In the combined grade of Firsts and Seconds, 50 per cent must be Firsts and 50 per cent may be Seconds.

Firsts shall be 8 inches and over wide.

Eight to 9 inches must be clear.

Ten to 11 inches will admit 1 inch of bright sap.

Twelve to 14 inches will admit one standard knot and 2 inches of bright sap, or 4 inches of bright sap if there are no knots or equal defects.

Fifteen to 17 inches will admit two standard knots, or one standard knot and 3 inches of bright sap, or 4 inches of bright sap if there are no knots or equal defects.

Seconds shall be 7 inches and over wide.

Seven inches must be clear.

Eight inches will admit of 1 inch of bright sap.

Nine to 11 inches will admit one standard knot and 1 inch of bright sap, or 3 inches of bright sap, or equal defects.

Twelve to 14 inches will admit two standard knots and 2 inches of bright sap, or one standard knot and 4 inches of bright sap, or 5 inches of bright sap if there are no knots or equal defects.

Fifteen to 17 inches will admit three standard knots or two standard knots and 3 inches of bright sap, or 6 inches of bright sap if there are no knots or equal defects.

Splits not to exceed in length the width of the board in Firsts and Seconds and not over 20 per cent of the whole in either quality may be so split.

SELECTS.

Lengths, 10 to 20 feet, admitting not to exceed 15 per cent of 10 feet.

Widths, 6 inches and over.

Standard thicknesses: One inch to 4 inches.

Selects shall include the following different kinds of boards:

1. A board having a face side as good as a Second, the other side must be as good as a No. 1 Common.

2. A board having a face side as good as a First, the other side must be as good as a No. 2 Common.

Sun checks admitted on the poor side of this board.

3. A board that has one more standard defect than would admit it to a Second. Examples:

(*a*) A board 6 to 7 inches wide with one standard knot or equal defect.

(*b*) A board 8 inches wide with 1 inch of bright sap and one standard knot or equal defects.

(*c*) Boards 9 to 11 inches wide with 2 inches of bright sap and one standard knot or equal defects, and accordingly as widths increase.

Splits not to exceed in length the width of the board in this grade and not over 20 per cent of the whole may be so split.

SAPS.

Lengths, 10 to 20 feet, admitting not to exceed 15 per cent of 10 feet.

Widths, 4 inches and over.

Standard thicknesses, ⅜, ⅝, ¾, 1, 1¼, 1½, and 2 inches.

Saps shall be clear of knots up to 10 inches in width.

Eleven and 12 inches will admit one standard knot.

Thirteen inches and over will admit two standard knots.

Splits not to exceed the width of the board up to 10 inches are admitted. Boards over 10 inches in width will admit a split one-sixth the length of the board, if there are no other defects.

NO. 1 COMMON.

Lengths, 8 to 20 feet, admitting not to exceed 5 per cent of 8 feet, and 15 per cent of 10 feet.

Widths, 5 inches and over.

Standard thicknesses, ⅝ to 4 inches.

Bright sap shall not be considered a defect.

Sound discolored sap one-third of the board admitted.

No. 1 Common shall be inspected to grade according to the percentage of clear face rippings and cuttings as shown below, subject to the restrictions on the reverse side of said cuttings and rippings, as hereinafter stated.

The reverse side of any ripping or cutting may contain defects, excepting splits, which will not exceed 2 inches in the aggregate.

The following table explains fully how the width and length of boards are to grade:

5 inches	8 to 14 ft. long shall cut 90 per cent in 2 pieces.
	16 ft. and longer shall cut 90 per cent in 3 pieces.
6 to 7 inches	8 to 10 ft. long shall cut 85 per cent in 2 pieces.
	12 ft. and longer shall cut 85 per cent in 3 pieces.
8 to 9 inches	8 to 10 ft. long shall cut 75 per cent in 2 pieces.
	12 to 16 ft. long shall cut 75 per cent in 3 pieces.
	18 to 20 ft. long shall cut 75 per cent in 4 pieces.
10 to 12 inches	8 to 10 ft. long shall cut 70 per cent in 2 pieces.
	12 to 14 ft. long shall cut 70 per cent in 3 pieces.
	16 to 18 ft. long shall cut 70 per cent in 4 pieces.
	20 ft. long shall cut 70 per cent in 5 pieces.
13 inches and wider	8 to 10 ft. long shall cut 66⅔ per cent in 3 pieces.
	12 to 14 ft. long shall cut 66⅔ per cent in 4 pieces.
	16 to 18 ft. long shall cut 66⅔ per cent in 5 pieces.
	20 ft. long shall cut 66⅔ per cent in 6 pieces.

NO. 2 COMMON.

Lengths, 8 to 20 feet, admitting not to exceed 5 per cent of 8 feet and 15 per cent of 10 feet.

Widths, 4 inches and over.

Standard thicknesses, ⅝ to four inches.

No. 2 Common shall include all lumber that will not come up to the grade of No. 1 Common and that will work one-half of the piece into sap or clear face rippings and cuttings. No cutting to be less than 4 inches wide and less than 2 feet in length.

Bright sap and sound discolored sap is not to be considered a defect in this grade.

NO. 3 COMMON.

Lengths, 6 to 20 feet, admitting not to exceed 5 per cent of 6 feet, 10 per cent of 8 feet, and 10 per cent of 10 feet.

Widths, 3 inches and over.

Standard thicknesses, ⅝ to 4 inches.

No. 3 Common must contain at least one-half of sound rippings and cuttings, remainder of the board to be as good as a No. 4 Common; no cutting to be less than 3 inches wide and less than 2 feet in length.

A ripping or cutting shall be considered sound containing sound knots on face side. Sound discolored sap is not a defect in this grade.

NO. 4 COMMON.

Standard thicknesses, ⅝ to 2 inches.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for rough boxing, sheathing, etc. Wormholes are not to be considered defects, and unsound lumber with sufficient substance to hold nails admitted.

SCOOTS.

Standard thickness, 1 inch.

Scoots shall include all lumber that will not come up to the grade of No. 4 Common.

WAGON BOX BOARDS.

Lengths, 12, 14, and 16 feet.

Widths, 8 to 12 inches and 13 to 17 inches.

Thickness, 1 inch.

In Box Boards bright sap or slightly discolored sap that will dress up sound, not necessarily bright, but not black, admitted.

One sound knot not to exceed 1 inch in diameter, showing on one side only, will be admitted in this grade.

Splits in 12 foot may be 15 inches long, or any defect that will cut off leaving the board 10 feet 6 inches long. Fourteen foot is used for making one side 10 feet 6 inches and one end 3 feet 6 inches, so a split is a serious defect in this length; but 10 per cent of all 14 foot in a given lot may have one split not to exceed 12 inches in length. Sixteen-foot may have one standard knot, showing through the piece, provided it will cut two pieces same as a 14 foot board.

QUARTERED POPLAR, NO. 1 AND 2.

Lengths, 10 to 20 feet, admitting not to exceed 15 per cent of 10 feet.

Widths, 5 inches and over.

Thicknesses, 1 inch and 1¼ inches.

Defects in this kind of Poplar differ from those in plain sawn, and consist largely of spike knots and open gum spots.

Firsts and Seconds shall be a combined grade.

Five inches must be clear.

Six to 7 inches, 10 and 12 feet long, will admit two knots showing 1 inch space on edge, or one knot condensed not exceeding a 2-inch space.

Six to 7 inches, 14 feet and longer, will admit three knots showing 1 inch space on edge, or one or two defects condensed not exceeding 3 inches of space.

Eight to 9 inches, 10 and 12 feet long, will admit two knots showing 1½ inches in space on edge, or one defect condensed not exceeding 3 inches in space.

Eight to 9 inches, 14 feet and longer, will admit three knots 1½ inches in space on edge, or one or two defects condensed not exceeding the same.

Ten inches and wider, 10 and 12 feet long, will admit two knots 2 inches in space on edge, or one defect condensed not exceeding the same.

Ten inches and wider, 14 feet and longer, will admit three knots 2 inches in space on edge, or one or two defects condensed not exceeding the same.

QUARTERED POPLAR, COMMON.

Lengths, 8 to 20 feet, admitting not to exceed 15 per cent of 10 feet.

Widths, 4 inches and over.

Thicknesses, 1 inch and 1¼ inches.

4 inches, 8, 10, and 12 feet long, must cut 85 per cent clear face cutting in 2 pieces.
  14 feet and longer must cut 85 per cent clear face cutting in 3 pieces.

5 to 6 inches, 8 to 10 feet long, must cut 80 per cent clear face cutting in 2 pieces.
  12 to 14 feet long must cut 80 per cent clear face cutting in 3 pieces.
  16 feet long must cut 80 per cent clear face cutting in 4 pieces.
  18 to 20 feet long must cut 80 per cent clear face cutting in 5 pieces.

7 to 8 inches, 8, 10 and 12 feet long, must cut 70 per cent clear face cutting in 3 pieces.
  14 to 16 feet long must cut 70 per cent clear face cutting in 4 pieces.
  18 to 20 feet long must cut 70 per cent clear face cutting in 5 pieces.

9 inches and wider, 8, 10, and 12 feet long, must cut 66⅔ per cent clear face cutting in 3 pieces.
  14 to 16 feet long must cut 66⅔ per cent clear face cutting in 4 pieces.
  18 feet long must cut 66⅔ per cent clear face cutting in 5 pieces.
  20 feet long must cut 66⅔ per cent clear face cutting in 6 pieces.

STRIPS.

Lengths, 10 to 20 feet, admitting not to exceed 15 per cent of 10 feet.

Widths, 4, 5, and 6 inches.

A—Strips shall be clear of all defects excepting 1 inch of bright sap showing only on one face.

B—Strips, bright sap admitted without limit or in the absence of sap two sound knots not to exceed ¾ inch in diameter or one standard knot.

C—Strips will admit of bright or sound discolored sap without limit or three standard knots or their equivalent in smaller knots.

SQUARES.

Lengths, 8, 9, 10, 12, 14, 16, 18, and 20 feet.

Sizes, 4x4, 5x5, 6x6, 7x7, 8x8, 9x9, 10x10, and 12x12.

Firsts and Seconds.—A combined grade.

Firsts are to be sound and free from hearts, shakes, and checks.

4x4, 8 to 12 feet long, may contain one standard knot or 2 inches of bright sap on two edges.

4x4, 14 feet and longer, may contain one standard knot and 2 inches of bright sap on two edges.

5x5 and 6x6, 8 to 12 feet long, may contain one standard knot and 2 inches of bright sap on two edges.

5x5 and 6x6, 14 feet and longer, may contain two standard knots or 3 inches of bright sap on two edges.

7x7, 8 to 12 feet long, may contain two standard knots or 3 inches of bright sap on two edges.

7x7, 14 feet and longer, may contain two standard knots and 3 inches of bright sap on two edges.

8x8, 8 to 12 feet long, may contain three standard knots or 3 inches of bright sap on two edges.

8x8, 14 feet and longer, may contain three standard knots and 3 inches of bright sap on two edges.

9x9, 8 to 12 feet long, may contain four standard knots or 3 inches of bright sap on two edges.

9x9, 14 feet and longer, may contain four standard knots and 3 inches of bright sap on two edges.

10x10 and 12x12, 8 to 12 feet long, may contain five standard knots or 4 inches of bright sap on two edges.

10x10 and 12x12, 14 feet and longer, may contain five standard knots and 4 inches of bright sap on two edges.

Seconds will admit all knots as described in Firsts; but bright sap shall be admitted without limit. If there are no knots, one-third sound discolored sap shall be admitted or slight season checks on either side.

COMMON SQUARES.

Common Squares will include all Squares not up to the grade of Firsts and Seconds that will cut two-thirds their length clear in short pieces that can be used for newells and short turnings, or will admit of stained sap without limit, if they have no more defects than would go in a Second, or will admit of seasoning checks running full length on two sides.

DRESSED POPLAR.

1. Dressed Poplar shall be inspected from the best or face side.
2. Defective dressing on reverse side admitted.
3. Slightly chipped grain on the face side admitted, provided it does not exceed 6 inches square in Firsts and Seconds, and 12 inches square in saps and selects in the aggregate.
4. Imperfect manufacture in dressed stock, such as torn grain, broken knots, mismatched, insufficient tongue or groove, shall be considered defects and will reduce the grade accordingly.
5. Partition, ceiling, flooring, or drop siding having less than three-sixteenths inch tongue shall not be admitted in any grade above No. 2 Common.
6. Wane on the reverse side not exceeding one-third the width and running not to exceed one-sixth the length of any piece, provided the wane does not extend into the tongue, or over one-half the thickness below the groove, will be admitted.

STANDARD SIZES OF DRESSED POPLAR.

Finishing.—$\frac{1}{2}$ inch S 2 S, $\frac{5}{16}$ inch; $\frac{5}{8}$ inch S 2 S, $\frac{7}{16}$ inch; $\frac{3}{4}$ inch S 2 S, $\frac{9}{16}$ inch; 1 inch S 2 S, $\frac{13}{16}$ inch; $1\frac{1}{4}$ inches S 2 S, $1\frac{3}{32}$ inches; $1\frac{1}{2}$ inches S 2 S, $1\frac{11}{32}$ inches; 2 inches S 2 S, $1\frac{3}{4}$ inches.

Casing and Base.—Dressed to $\frac{13}{16}$ inch thick; $3\frac{1}{2}$ inches, $4\frac{1}{2}$ inches, $5\frac{1}{2}$ inches, $6\frac{1}{2}$ inches, $7\frac{1}{2}$ inches, $8\frac{1}{2}$ inches, $9\frac{1}{2}$ inches, and $11\frac{1}{2}$ inches wide.

Flooring and Partition.—Dressed to $\frac{13}{16}$ inch thick; $2\frac{1}{4}$ inches, $3\frac{1}{4}$ inches, $4\frac{1}{4}$ inches, and $5\frac{1}{4}$ inches face width. Where $3\frac{1}{2}$ inches face stock is wanted, it shall be counted $4\frac{1}{4}$ inches strip count.

Ceiling.—$\frac{3}{8}$ inch dressed to $\frac{5}{16}$ inch; $\frac{1}{2}$ inch to $\frac{7}{16}$ inch; $\frac{5}{8}$ inch to $\frac{9}{16}$ inch; $\frac{3}{4}$ inch to $\frac{11}{16}$ inch; same widths as partition.

BEVEL SIDING.

Standard lengths to be 4 foot and over, with not more than 10 per cent under 8 foot.

Bevel Siding made from 1x4, 5, and 6 inch strips, S 4 S, to $\frac{27}{32}$ x $3\frac{3}{8}$, $4\frac{3}{8}$, and $5\frac{3}{8}$ inches and resawed on a bevel.

Bevel Siding.—No. 1 must be practically free of defects except 1 inch of sap or one or two knots on thin edge that will be covered by lap.

Selects.—Bright sap admitted without limit or in the absence of sap, two sound knots not to exceed three-quarters inch in diameter or one standard knot.

No. 1 Common.—Will admit bright or sound discolored sap without limit, or three standard knots or their equivalent in smaller knots.

No. 2 Common.—Will admit all pieces that will not come up to the grade of No. 1 Common, which can be used for cheap siding without waste of more than one-third the length of any one piece. Pinworm holes admitted.

DROP SIDING.

Drop siding, same grades and lengths as bevel siding and shall be same widths as partition and worked to three-quarters inch thick.

CASING AND BASE.

Casing and Base.—Firsts and Seconds must be practically clear on face side.

Seven to 9 inches, 1 inch of bright sap, and 10 to 12 inches, $1\frac{1}{2}$ inches of bright sap will be admitted on one edge showing on face side.

Saps and Selects.—Bright sap admitted without limit, or in the absence of sap, one sound knot, not exceeding three-quarters inch in diameter, will be admitted in stock 8 inches and under, or one standard knot in stock 9 inches and over.

No. 1 Common.—Will include all stock that will not come up to the grade of Saps and Selects that will work two-thirds of its length clear, regardless of sap. Stained sap without limit where there are no other defects admitted in this grade.

PARTITION, FLOORING, AND CEILING.

No. 1.—Must be clear of all defects except bright sap.

No. 1 Common.—Will admit stained sap without limit, or clear sap and one small knot not exceeding three-quarters inch in diameter, or two small knots, or one standard knot if there is no sap.

No. 2 Common.—Will include all stock that will not come up to the grade of No. 1 Common that can be used for check work without waste of more than one-third the length of any one piece. Pin-worm holes admitted.

Yellow Face Stock is a special grade in partition, flooring, and ceiling.

MOLDINGS.

Moldings shall be based on the National Molding Book.

COTTONWOOD.

[Classification, official grading and inspection rules on Cottonwood Lumber, adopted by The Hardwood Manufacturers' Association of the United States at Nashville, Tenn., January 25, 1905.]

GENERAL INSTRUCTIONS.

1. The question of grading and inspecting cottonwood lumber is so much a matter of judgment to the inspector, as each piece comes before him, that no definite and positive rules can be laid down on paper by which any piece of any given lot can be inspected.

2. The variety of defects, their size, and location upon a piece have such relation to each other that the inspector necessarily must depend upon his own judgment in grading, guided by the following rules, so far as they will apply practically.

3. Lumber must be inspected and measured as the inspector finds it, of full length and width. He shall make no allowance for the purpose of raising the grade.

4. In inspecting all lumber both sides of the piece shall be taken into consideration in making the grade, bearing in mind that ninety per cent of all lumber only shows one face when finished.

5. Lumber shall be well manufactured, of uniform thickness, and have parallel edges.

6. Tapering lumber shall be measured at one-third the length of the board from the narrow end.

7. All lumber shall be tallied *surface* or face measure, tally counted up, and the one-fourth or one-half added to the total where the board is one and one-quarter to one and one-half inches thick and two inches or thicker to be multiplied by the thickness.

8. In the measurement of all lumber, fractions exactly on the half foot are to be given alternately to the buyer and seller, the fractions below the one-half foot are to be dropped, and all fractions above the half foot are to be counted to the next higher figure on the board rule.

9. Splits that do not diverge more than one inch for each foot in length are to be considered straight splits.

10. Pieces 13 inches and wider will take one large defect equal in damage to the several defects permtted in its width and grade.

11. Sap should be considered bright that will show bright after dressing.

12. The location of defects in a piece of lumber has much to do with its value, and should have great weight in deciding the grade.

13. Lumber shipped rough must be accepted on grades as shown in the rough, and not subject to any changes which may be caused by future mill-working, excepting as to the stained sap, as heretofore stated.

14. All widths and lengths mentioned in these rules shall be inclusive.

15. All lumber less than one inch in thickness shall be measured surface or face measure.

16. The standard thicknesses are three-eighths, one-half, five-eighths, three-fourths, one, one and one-fourth, one and one-half, two, two and one-half, three, and four inches.

17.. The standard widths and lengths are as designated under the heading of each grade.

STANDARD DEFECTS.

18. Each of the following items constitutes a standard defect:

(*a*) Standard knot one and one-fourth inches in diameter.

(*b*) Two knots not exceeding in extent or damage one standard knot.

(*c*) Worm or grub holes not exceeding in extent or damage one standard knot.

(*d*) Each rafting pin hole shall be considered one standard defect.

(*e*) One bark, waney, or wormy edge, not exceeding one inch in the aggregate, running not to exceed one-third the length of the board and showing on one side only, shall be considered a standard defect, and to be measured.

(*f*) Other standard defects as designated under the heading of each grade.

BOX BOARDS.

Lengths.—Twelve, fourteen, and sixteen feet

Widths.—Eight to twelve inches and thirteen to seventeen inches.

Thickness.—One inch.

In this grade bright sap or slightly discolored sap, that will dress up sound, not necessarily bright but not black, admitted.

One sound knot not to exceed one inch in diameter, and showing on one side only, will be admitted in this grade.

Splits in twelve-foot may be fifteen inches long.

This length may also contain any defect that will cut off, leaving the board ten feet six inches long. Fourteen foot is used for making one side ten feet six inches long, and one end three feet six inches long; a split, therefore, is a serious defect in this length, but ten per cent of all fourteen foot in a given lot may have one split not to exceed twelve inches in length. Sixteen foot may have one standard knot or any other defect, showing through the piece, provided it will cut two pieces same as a fourteen foot board.

FIRSTS AND SECONDS.

Firsts and Seconds is a combined grade.

Lengths.—Ten, twelve, fourteen, and sixteen feet, not to exceed ten per cent of ten feet.

Widths.—Six inches and up.

Standard Thicknesses.

Pieces six to seven inches wide shall be clear.

Pieces eight and nine inches will admit one standard defect or its equivalent.

Pieces ten to twelve inches wide will admit two standard defects or their equivalent.

Pieces thirteen to fifteen inches wide will admit three standard defects or their equivalent.

Pieces sixteen to seventeen inches wide will admit four standard defects or their equivalent.

Pieces eighteen inches wide and wider will admit five standard defects or their equivalent.

In this grade straight splits shall be admitted which do not exceed in length (in inches) the surface measure of the piece in feet. Slightly discolored sap which will dress up sound, not necessarily bright but not black, shall be admitted.

NO. 1 COMMON.

Lengths.—Six to sixteen feet, not to exceed 10 per cent of six-foot lengths.

Widths.—Four inches and over.

Four and five inches will admit one standard knot or equal defects.

Six to eleven inches wide, eight and ten feet long, must work two-thirds clear in not over two pieces.

Twelve inches and over wide, eight and ten feet long, must work two-thirds clear in not over three pieces.

Six to eleven inches wide, twelve feet and over long, must work two-thirds clear in not over three pieces.

Twelve inches and over wide, twelve feet and over long, must work two-thirds clear in not over four pieces.

No piece or cutting to be considered which is less than four inches wide and three feet long, but as the width increases the length may decrease, but the shortest cutting to be considered must be eighteen inches long and not less than eight inches wide. Pieces six feet long must be clear up to eight inches wide; over eight inches wide will admit one standard defect.

NO. 2 COMMON.

Lengths.—Six to sixteen feet.

Widths.—Three inches and wider.

Standard thicknesses.

Pieces six to ten feet long shall work 50 per cent sound cuttings in not over three pieces.

Pieces twelve feet or over long shall work 50 per cent sound cuttings in not over four pieces.

No piece or cutting to be considered which is less than three inches wide and two feet long.

NO. 3 COMMON.

Lengths.—Four to sixteen feet.

Widths.—Three inches and wider.

Standard thicknesses.

Pieces four feet or over long shall work at least 25 per cent sound cuttings.

No piece of cutting to be considered which is less than three inches wide and two feet long.

NO. 4 COMMON.

No. 4 Common shall include all lumber not up to the grade of No. 3 Common that can be used for rough boxing, sheathing, etc. Wormholes are not to be considered a defect. Unsound lumber with sufficient substance to hold nails admitted.

SQUARES.

No. 1 shall be practically clear of knots.

No. 2 shall admit of sound knots, stained sap, small season checks, splits not exceeding twelve inches in length, and pinworm holes.

DRESSED COTTONWOOD.

1. Dressed cottonwood shall be inspected from the best or face side.
2. Defective dressing on the reverse side admitted.
3. Slightly chipped grain on the face side admitted, provided it does not exceed in the aggregate six inches square in Firsts and Seconds eight to twelve inches wide; ten inches square in Firsts and Seconds thirteen inches and wider; twelve inches square in No. 1 Common six to twelve inches wide; sixteen inches square in No. 1 Common thirteen inches and wider.
4. Imperfect manufacture in dressed stock, such as torn grain, broken knots, mismatching, insufficient tongue and groove, shall be considered defects and reduce the grade accordingly.

BEVEL SIDING.

First Grade shall be known as No. 1, which shall be absolutely clear face, except small defects within one inch of the thin edge.

Second Grade shall be known as No. 2, which will admit slightly discolored sap, or three sound knots not to exceed three-quarters of an inch in diameter.

Third Grade shall be known as No. 3, and shall comprise stock not up to grade of No. 2 admitting unsound knots, splits, etc., provided three-fourths of the piece will work merchantable.

PATENT OR DROP SIDING.

First Grade shall be known as No. 1, and shall have one clear face and be otherwise sound.

Second Grade shall be known as No. 2 and will admit of discolored sap, and in six inch will admit of two standard knots; in eight inch, four standard knots or their equivalent in small knots.

CEILING AND FLOORING.

First Grade shall be known as No. 1, and shall have one clear face and be otherwise sound.

Second Grade shall be known as No. 2, and may admit of one standard knot or three small knots and slight sap stains.

Third Grade shall be known as No. 3, and shall be comprised of stock not up to grade of No. 2, provided three-fourths of the piece will work without waste.

Four, five, and six inch flooring and ceiling shall be worked three and one-fourth, four and one-fourth, and five and one-fourth inch face.

PARTITION.

No. 1 must be clear of knots on both sides.

No. 2, graded same as No. 2 flooring.

CASING AND BASE.

Graded same as patent siding, and shall be inspected on face side, worked one-half inch less than size given.

MOLDINGS.

Shall be based on Universal Molding Book.

GUM.

Official classification, grading, and inspection rules for the measurement of gum lumber. Adopted June, 1902. Reconstructed at Louisville, Ky., January 17, 1906. Rearrangement finished, July 17, 1906.]

GENERAL INSTRUCTIONS.

1. The inspection of lumber is largely a matter of judgment, and these rules are intended to define in a general way such inspection.

2. Exceptions to the general rule of grading will be found under the heading for each kind of lumber.

3. Lumber must be inspected and measured as the Inspector finds it, of full length and width. He shall make no allowance for the purpose of raising the grade.

In inspecting all lumber, both sides of the piece shall be taken into consideration in making the grade; bearing in mind that 90 per cent of all lumber only shows one face when finished.

4. Lumber shall be well manufactured, of even thickness, and have parallel edges, and all ragged and bad ends shall be trimmed off.

5. Tapering lumber shall be measured at one-third the length of the board from the narrow end.

6. All lumber shall be tallied surface or face measure, the tally counted up, and the one-quarter or one-half added to the total where the lumber is one and one-quarter or one and one-half inches thick, and two inches and thicker to be multiplied by the thickness.

In the measurement of all lumber, fractions exactly on the one-half foot are to be given alternately to the buyer and seller; the fractions below the one-half foot are to be dropped, and all fractions above the half foot are to be counted to the next higher figure on the board rule.

7. The standard lengths are four to sixteen feet. Standard thicknesses are ⅜, ½, ⅝, ¾, 1, 1¼, 1½, 2 inches.

8. Standard Grades are Firsts and Seconds Red, Wagon Box Boards, Firsts and Seconds Sap, Red Common, No. 1 Common, No. 2 Common and No. 3 Common.

STANDARD DEFECTS.

Each one of the following items constitutes a standard defect:

(a) One knot one and one-quarter inches in diameter.

(b) Two knots not exceeding in extent one standard knot.

(c) Worm holes, grub holes or rafting pin holes not exceeding in extent or damage one standard knot.

(d) Heart, shakes, rot or dote not exceeding in extent or damage one standard knot.

(e) A straight split in one end of a piece of lumber exceeding in inches the face measure of the board in feet shall be a standard defect, and not more than 20 per cent of the whole may be so split.

(f) One bark edge or wane not to exceed one inch in the aggregate, running not to exceed one-third the length of the board, and only showing on one side and to be measured, and but one such defect admissible in any one board in the grades of Firsts and Seconds Red and Firsts and Seconds Sap.

EXPLANATION OF STANDARD DEFECTS.

(a) Ordinary season checks are not to be considered defects.

(b) Splits that do not diverge more than one inch for each foot in length are straight splits.

(c) A straight split not exceeding six inches in length in one end of a piece of lumber, eight inches and over wide, shall not be considered a defect.

(d) Sound heart in Firsts and Seconds if longer than the width of the piece will reduce it to the next lower grade.

(e) In grades below Firsts and Seconds, boards with one clear face eight inches and over wide shall be raised one grade.

(f) The location of defects in a piece has much to do with its value, and should have great weight in deciding the grade.

(g) Wide pieces of lumber that would take two or three standard knots may have one large knot, equal to two or three standard knots if there are no other defects.

(h) The rules for the inspection of lumber are intended to define the poorest piece that will go in a given grade. Where the defects are slightly beyond the specifications, making it a line board, twelve foot and longer lengths should be given advantage in grade; ten foot and shorter lengths reduced.

(i) All widths and lengths mentioned in these rules shall be inclusive.

FIRSTS AND SECONDS RED.

Firsts and Seconds Red are combined as one grade. This grade shall show one red face.

Firsts shall be six inches and over wide; ten, twelve, fourteen and sixteen feet long, and free from all defects except in pieces eight inches and over wide, which shall admit of one standard defect.

Seconds are six inches and over wide, eight to sixteen feet long; six and seven inches wide will admit of one standard defect; pieces eight, nine and ten inches wide will admit of two standard defects; pieces eleven, twelve and thirteen inches wide will admit three standard defects; except ten foot lengths which will admit two defects. As widths increase defects may increase in proportion. This grade will admit 15 per cent of ten foot and 5 per cent of eight foot lengths. Eight foot lengths must grade first in quality.

WAGON BOX BOARDS.

Lengths, 12, 14 and 16 feet.

Widths, 8 to 12 inches, and 13 to 17 inches.

Thickness, one inch.

In this grade bright sap or discolored sap, if sound admitted.

One sound knot not to exceed one inch in diameter, showing on one side only, will be admitted in this grade.

Splits in 12 foot may be fifteen inches long, or any defect that will cut off leaving the board 10 feet 6 inches long. 14 foot is used for making one side 10 feet 6 inches and one end 3 feet 6 inches, so a split is a serious defect in this length; but ten per cent of all 14 foot in a given lot may have one split not to exceed 12 inches in length, 16 foot may have one standard knot, showing through the piece, provided it will cut two pieces same as a 14 foot board.

FIRSTS AND SECONDS SAP.

Firsts and Seconds Sap shall grade the same as firsts and seconds red, except that bright sap or discolored sap if sound is not to be considered a defect in this grade.

RED COMMON.

This grade shall show one red face.

The lengths are six to sixteen feet, not to exceed 10 per cent of six foot lengths. The widths are four inches and over.

Four and five inches will admit one standard knot or equal defects.

Six to eleven inches wide, eight and ten feet long, must work two-thirds clear face in not over two pieces.

Twelve inches and over wide, eight and ten feet long, must work two-thirds clear face in not over three pieces.

Six to eleven inches wide, twelve feet and over long must work two-thirds clear face in not over three pieces.

Twelve inches and over wide, twelve feet and over long, must work two-thirds clear face in not over four pieces.

No piece or cutting to be considered which is less than four inches wide and three feet long, but as the width increases the length may decrease, but the shortest cutting to be considered must be eighteen inches long and not less than eight inches wide. Two-thirds of this grade must be six inches and over wide. Pieces six feet long must be clear up to eight inches wide; over eight inches wide will admit one standard defect.

The reverse side of clear face cuttings must be of a sound nature.

NO. 1 COMMON SAP.

No. 1 Common shall grade the same as red common, except that sound sap, regardless of discoloration shall not be considered a defect in this grade.

NO. 2 COMMON.

Lengths 4 to 16 feet.

Widths 3 inches and over.

Thicknesses standard.

No. 2 Common shall include all lumber that will not come up to the grade of No. 1 Common and that will work at least one half into sound rippings or cuttings. No piece or cutting to contain less than 144 square inches. Black sap not to be considered a defect in this grade.

NO. 3 COMMON.

The lengths are four to sixteen feet. The widths are three inches and over, and must contain at least 25 per cent sound cutting. No piece or cutting to contain less than one-half foot face measure.

Black sap is not to be considered a defect in this grade.

NO. 4 COMMON.

STANDARD THICKNESSES.

No. 4 common shall include all lumber not up to the grade of No. 3 Common that can be used for rough boxing or sheathing. Worm holes are not to be considered defects and unsound lumber with sufficient substance to hold nails admitted.

LOG RUN.

Means the full run of the log with all grades below No. 2 Common out.

DRESSED GUM.

1. Dressed Gum shall be inspected from the best or face side.
2. Defective dressing on reverse side admitted.
3. Slightly chipped grain on the face side admitted, provided it does not exceed six inches square in firsts and seconds, and twelve inches square in saps and selects in the aggregate.
4. Imperfect manufacture in dressed stock, such as torn grain, broken knots, mismatched, insufficient tongue or groove, shall be considered defects and will reduce the grade accordingly.
5. Partition, ceiling, flooring or drop siding, having less than three-sixteenths inch tongue shall not be admitted in any grade above No. 3 Common.
6. Wane on the reverse side not exceeding one-third the width and running not to exceed one-sixth the length of any piece, provided the wane does not extend into the tongue, or over one-half the thickness below the groove will be admitted.

STANDARD SIZES OF DRESSED GUM.

Finishing.—½ inch S 2 S, $\frac{5}{16}$ inch; ⅝ inch S 2 S, $\frac{7}{16}$ inch; ¾ inch S 2 S, $\frac{9}{16}$ inch; 1 inch S 2 S, $\frac{13}{16}$ inch; 1¼ inch S 2 S, 1$\frac{3}{32}$ inches; 1½ inches S 2 S, 1$\frac{11}{32}$ inches; 2 inches S 2 S., 1¾ inches.

Casing and base.—Dressed to $\frac{13}{16}$ inch thick; 3½ inches, 4½ inches, 5½ inches, 6½ inches, 7½ inches, 8½ inches, 9½ inches and 11½ inches wide.

Flooring and partition.—Dressed to $\frac{13}{16}$ inches thick; 2¼ inches, 3¼ inches, 4¼ inches and 5¼ inches face width. Where 3½ inches face stock is wanted it shall be counted 4¼ inches strip count. Flooring to be S 2 S. and center matched.

Ceiling.—⅜ inch dressed to $\frac{5}{16}$ inch; ½ inch to $\frac{7}{16}$ inch; ⅝ inch to $\frac{9}{16}$ inch; ¾ inch to $\frac{11}{16}$ inch; same widths as partition.

BEVELED SIDING AND WEATHERBOARDING.

Bevel siding made from 1x4 inch, 5 inch and 6 inch strips S 4 S, to $\frac{13}{16}$x3½, 4½, 5½, and resawed on a bevel.

No. 1 Grade will allow sound sap without limit, but is otherwise clear except small defects which the lap will cover.

No. 2 Grade may contain imperfections in working or other defects which can be removed in two cuts without waste of more than 10 per cent of the length of any one piece.

No. 3 Grade permits all classes of defects, but must work without waste of more than one-third of the contents of any one piece.

PATENT OR DROP SIDING, FLOORING, CEILING AND PARTITION.

No. 1 Grade will allow sound sap without limit, but is otherwise without defects.

No. 2 Grade may contain imperfections in working and unsound defects which can be removed in two cuts without waste of more than 10 per cent of the length of any one piece.

No. 3 Grade permits all classes of defects, but must work without waste of more than one-third of the contents of any one piece.

Patent or Drop Siding may be worked any standard pattern desired, and is regularly made tongued and grooved, though may be ship-lapped if so ordered. State whether single or double cut is wanted, and when possible mail pattern with order to avoid misunderstanding.

Flooring is standard worked to avoid variation in the matching of different manufactures.

Ceiling is all double beaded one side only, unless otherwise ordered. In ordering special patterns of Ceiling and Drop Siding any small amount produced of different grade than specified must be taken at corresponding difference in price.

No. 1 Finish in pieces 6 to 7 inches wide are clear; pieces 8 to 10 inches may have one standard defect; pieces from 10 to 12 inches two defects; pieces 13 inches or over may have three standard defects or their equivalent in larger defects. (SOUND SAP IS NOT CONSIDERED A DEFECT IN THIS GRADE.)

No. 2 Finish are calculated to work 75 per cent clear in not over three pieces. Discolored sap, unless of an unsound nature and small pin worm holes, are not considered defects in this grade.

MAPLE FLOORING MANUFACTURERS' ASSOCIATION.

This association was organized for the purpose of introducing the use of maple flooring, and has published sets of grades, the latest revision of which is dated January 17, 1906.

[Maple Flooring Manufacturers' Association. Revised rules for grading maple flooring. Effective January 17, 1906.]

Clear, $\frac{13}{16}$ inch.—Shall have one face free of all defects, but the question of color shall not be considered. Standard lengths in all widths in this grade shall be 2 to 16 feet, inclusive. The proportion of lengths 2 to 3½ feet shall be what the stock will produce up to 7 per cent.

No. 1, $\frac{13}{16}$ inch.—Will admit of tight, sound knots and slight imperfections in dressing, but must lay without waste. Standard lengths in this grade shall be trimmed from 1½ to 16 feet, inclusive.

Factory Flooring, $\frac{13}{16}$ inch.—Must be of such a character as will lay and give a good serviceable floor with some cutting. Lengths 1 to 16 feet.

NATIONAL HARDWOOD LUMBER ASSOCIATION.

This association was organized in 1896, and incorporated under the laws of the State of Illinois in 1901, for the primary purpose of establishing a uniform system for the inspection and measurement of hardwood lumber. An inspection bureau was established in 1900.

The inspection bureau is under the direction of a surveyor-general, who had in October, 1905, a corps of 45 unsalaried and 9 salaried inspectors located in the various markets and producing centers. Original inspection is restricted to members only.

In case of a dispute, and where the bureau reinspection differs more than 4 per cent from the original inspection, the plaintiff can collect the difference from the association, which in turn collects from the inspector who made the original inspection.

The rules of this association have been adopted by many dealers in hardwood lumber.

[Rules for the measurement and inspection of hard-wood lumber adopted by the National Hardwood Lumber Association. Revised at annual meeting held in Buffalo, N. Y., May 18 and 19, 1905, to take effect December 1, 1905. Copyrighted 1905, by The National Hardwood Lumber Association.]

RULES OF INSPECTION.

[These rules are for the wholesale measurement and inspection of hard-wood lumber. These rules not to be changed for a period of three years.]

GENERAL INSTRUCTIONS.

As the inspection of lumber is so largely a matter of judgment, inspectors inspecting under these rules are instructed to use their best judgment based upon these rules, taking into consideration the general run of the stock as lengths, widths, and manufacture.

Lumber must be inspected and measured as the inspector finds it, of full length and width. He shall make no allowance for the purpose of raising the grade. The inspection must be made from the worst side of the board, except as otherwise provided by the rules.

Lumber shall be well manufactured, of good average widths and lengths. It should be sawed plump and even thickness and have parallel edges and square ends. Tapering lumber in standard lengths is measured at the narrow end, except as otherwise specified.

All fractions of three-quarters of a foot or over must be counted up to the next higher figure; all fractions of less than three-quarters of a foot must be counted back to the next lower figure.

All badly missawed lumber must be thrown out by the inspector.

All lumber must be tallied face or surface measure.

STANDARD GRADES.

The standard grades of hard-wood lumber are First, Second, No. 1 Common, No. 2 Common, and No. 3 Common, except as otherwise specified. Firsts and Seconds are combined as one grade. There must be at least one-third of Firsts, except as otherwise specified.

In the grade of No. 1 Common 10 feet or over long, heart must not show more than $\frac{1}{6}$ of the length of the piece in the aggregate. In No. 2 Common 10 feet and over long, heart must not show more than $\frac{1}{2}$ the length of the piece in the aggregate.

STANDARD LENGTHS.

Standard lengths are 6, 8, 10, 12, 14, and 16 feet, except as otherwise specified. As most lumber is handled in lengths of 10, 12, 14, and 16 feet, odd lengths, such as 9, 11, and 13 feet, must be measured back to the next even length, except as otherwise specified.

In the grade of Firsts and Seconds the lengths are from 8 to 16 feet, but there must not be over 10 per cent of 10-foot lengths and 5 per cent of 8-foot lengths, except as otherwise specified.

STANDARD THICKNESSES.

The standard thicknesses of lumber are $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3, and 4 inches.

STANDARD DEFECTS.

One knot $1\frac{1}{4}$ inches in diameter.

Two sound knots not exceeding in extent or damage one $1\frac{1}{4}$-inch knot.

One inch of bright sap, except as otherwise specified.

One split not diverging more than 1 inch to the foot, and not exceeding in length in inches the surface measure of the piece in feet, except as otherwise specified.

Worm, grub, knot, and rafting-pin holes, not exceeding in extent or damage one $1\frac{1}{4}$-inch knot, except as otherwise specified.

NOTE.—A straight split not exceeding 6 inches in length in one end of a piece of lumber 8 inches or over wide must not be considered a defect.

EXPLANATIONS.

The term "Sound Cutting," as used in these rules, means a piece of lumber free from rot and shake.

Ordinary season checks are not to be considered defects, but if of so serious a character as to damage the lumber they are to be considered by the inspector.

Black stain, heart, shake, rot, and dote are serious defects, reducing to a grade lower than First and Second.

Wane is a beveled edge of a board or plank as sawn from an unsquared log. Inspectors must consider same in determining grades.

In the following rules all widths and lengths mentioned are inclusive.

SPECIAL INSPECTION.

Log run means the full run of the log with No. 3 Commons out.

Common and Better means the full run of the log with No. 2 and No. 3 Commons out. Common and Better must contain at least 50 per cent of Firsts and Seconds.

Merchantable means the full run of the log with No. 3 Commons out, and that the No. 1 Commons and Firsts and Seconds must be measured full and the No. 2 Commons one-half.

INSPECTION OF LUMBER SAWED FOR SPECIFIC PURPOSES.

Lumber sawed for specific purposes, such as axles, bolsters, tongues, reaches, and so forth, must be inspected with a view to the adaptability of the piece for its intended use, because in most cases it can not be used for other purposes.

STANDARD INSPECTION.

ASH.

Grades: First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Thicknesses: 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Bright sap is no defect.

Firsts.—Firsts must be 8 inches or over wide, 10, 12, 14, or 16 feet long, and free from all defects, except in pieces 10 inches or over wide, which may have one standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be 8 inches or over wide; pieces 8 or 9 inches wide must be clear; pieces 10 inches or over wide may have one standard defect.

Pieces 10 feet or over long, 6 or 7 inches wide, may have one standard defect, except knot holes or rafting-pin holes; pieces 8 or 9 inches wide may have one standard defect; pieces 10 or 11 inches wide may have two standard defects or their equivalent; pieces 12, 13, and 14 inches wide may have three standard defects or their equivalent; pieces 15 inches or over wide may have four standard defects or their equivalent.

Lengths of 18 feet or over are a special grade and will admit widths of 5 inches or over in Firsts and Seconds. Tapering pieces 20 feet or over long must be measured one-third the distance from the narrow end.

No. 1 Commons.—No. 1 Commons are 4 inches or over wide, 6 to 16 feet long.

Pieces 4 inches wide must have one face clear and two square edges; pieces 5 inches wide may have one standard defect.

Pieces 6 inches or over wide, 6, 8, or 10 feet long, must work two-thirds clear in not over two pieces.

Pieces 6 inches or over wide, 12 feet or over long, must work two-thirds clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 2 feet long or 3 inches wide and 3 feet long.

No. 2. Commons.—No. 2 Commons must be 3 inches or over wide, 6 feet or over long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces.

Pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in the No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and contain at least 25 per cent sound cutting.

BASSWOOD.

Grades: First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Thicknesses: 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Bright sap is no defect.

Firsts.—Firsts must be 8 inches or over wide, 10, 12, 14, and 16 feet long, and free from all defects, except in pieces 10 inches or over wide, which may have one sound standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be clear.

Pieces 10 feet or over long, 6, 7, or 8 inches wide, may have one standard defect; pieces 9, 10, or 11 inches wide may have two standard defects or their equivalent; pieces 12, 13, and 14 inches wide may have three standard defects or their equivalent; pieces 15 inches or over wide may have four standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 3 or 4 inches wide must have one face clear and two square edges.

Five-inch pieces may have one standard defect.

Pieces 6 feet long, 6 to 8 inches wide must be clear; pieces 9 inches or over wide may have one standard defect.

Pieces 8 or 10 feet long and 6 inches or over wide must work two-thirds clear in not over two pieces.

Pieces 12 feet or over long and 6 inches or over wide must work two-thirds clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work 50 per cent sound in not over three pieces.

Pieces 12 feet or over long must work 50 per cent sound in not over four pieces.

No piece of cutting in No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of sound cutting.

NOTE.—Black spots or streaks are a serious defect and inspectors must be careful in estimating their damage. If they are excessive they will reduce the piece one or more grades.

Strips.—Basswood Strips must be 3, 4, 5, or 6 inches wide, 6 to 16 feet long.

Grades: Clear, No. 1 Common and No. 2 Common.

Clear Strips must be 10 to 16 feet long and show one face clear and two good edges.

No. 1 Common Strips must be 8 to 16 feet long, not to exceed 20 per cent shorter than 12 feet, and may have one standard defect showing on both faces.

No. 2 Common Strips must be 6 feet or over long and must work one-half clear in not more than three cuttings. No cutting to be less than 2 feet in length.

BAY POPLAR. (TUPELO.)

Grades: First, Second, No. 1 Common, No. 2 Common, No. 3 Common, and Box Board.

Thicknesses: ⅜, ½, ⅝, ¾, 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Widths: 3 inches or over.

Lengths: 6 feet or over.

Bright sap is not a defect.

Firsts.—Firsts must be 8 inches or over wide, 10, 12, 14, and 16 feet long and free from all defects, except in pieces 10 inches or over wide, which may have one standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be 8 inches or over wide; pieces 8 or 9 inches wide must be clear; pieces 10 inches or over wide may have one standard defect.

Pieces 10 feet or over long, 6 or 7 inches wide, must be clear; pieces 8 or 9 inches wide may have one standard defect; pieces 10 inches or over wide may have two standard defects or their equivalent.

Slightly discolored sap is not a defect in No. 1 and No. 2 Common grades.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide, 6 to 16 feet long.

Pieces 4 inches wide must have one face clear and two square edges; pieces 5 inches wide may have one standard defect; pieces 6 inches or over wide, 12 feet or over long, must work three-quarters clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 feet or over long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces.

Pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long and contain at least 25 per cent of sound cutting.

Box Boards.—Wide Box Boards must be 13 to 17 inches wide, 12, 14, and 16 feet long, and clear, except slightly discolored sap, or one sound knot, which does not exceed 1 inch in diameter and which shows on one side only, or splits not exceeding 6 inches in length in either end.

Narrow Box Boards must be 9 to 12 inches wide, 12, 14, and 16 feet long, and clear, except slightly discolored sap, or one sound knot which does not exceed 1 inch in diameter and which shows on one side only, or splits not exceeding 6 inches in length in either end.

BEECH.

Grades: First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Thicknesses: 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Bright sap is no defect.

Firsts.—Firsts must be 8 inches or over wide, 10, 12, 14, and 16 feet long, and free from all defects, except in pieces 10 inches or over wide, which may have one sound standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be clear.

Pieces 10 feet or over long, 6, 7, or 8 inches wide, may have one standard defect; pieces 9, 10, or 11 inches wide may have two standard defects or their equivalent; pieces 12 inches or over wide may have three standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 3 inches or over wide, 6 to 16 feet long; pieces 3 or 4 inches wide must have one face clear and two square edges; 5-inch pieces may have one standard defect.

Pieces 6 feet long, 6 to 8 inches wide, must be clear; pieces 9 inches or over wide may have one standard defect.

Pieces 8 or 10 feet long and 6 inches or over wide must work two-thirds clear in not over two pieces.

Pieces 12 feet or over long and 6 inches or over wide must work two-thirds clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces.

Pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long and must contain at least 25 per cent of sound cutting.

BIRCH.

Grades: First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Thicknesses: 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Bright sap is no defect.

Firsts.—Firsts must be 8 inches or over wide, 10, 12, 14, and 16 feet long, and free from all defects, except in pieces 10 inches or over wide, which may have one sound standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be clear.

Pieces 10 feet or over long, 6, 7, or 8 inches wide, may have one standard defect.

Pieces 9, 10, or 11 inches wide may have two standard defects or their equivalent.

Pieces 12, 13, and 14 inches wide may have three standard defects, or their equivalent.

Pieces 15 inches or over wide may have four standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 3 or 4 inches wide must have one face clear and two square edges.

Five-inch pieces may have one standard defect.

Pieces 6 feet long, 6 to 8 inches wide, must be clear.

Pieces 9 inches or over wide may have one standard defect.

Pieces 8 or 10 feet long and 6 inches or over wide must work two-thirds clear in not over two pieces.

Pieces 12 feet or over long and 6 inches or over wide must work two-thirds clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces.

Pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of sound cutting.

Red Birch.—Firsts and Seconds red birch must be 5 inches and over wide.

Pieces 5 inches wide must be one face all red; 6 inches and over must not be less than 75 per cent red on one face. Otherwise red birch must be graded by the rules of ordinary birch.

BUTTERNUT.

Grades: First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Thicknesses: 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Firsts..—Firsts must be 8 inches or over wide, 12, 14, or 16 feet long.

Pieces 8 or 9 inches wide must be free from all defects.

Pieces 10 inches or over wide may have one standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long, but there must not be to exceed 20 per cent of 10-foot lengths and 5 per cent of 8-foot lengths.

Pieces 6 inches wide must be clear.

Pieces 7 or 8 inches wide may have one standard defect.

Pieces 9, 10, or 11 inches wide may have two standard defects or their equivalent.

Pieces 12 inches or over wide may have three standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide, 6 to 16 feet long, but not to exceed 50 per cent under 12 feet long.

Four-inch pieces must have one face clear and two square edges.

Five-inch pieces may have one standard defect.

Pieces 6, 8, or 10 feet long must work two-thirds clear in not over two pieces.

Pieces 12 feet or over long and 6 inches or over wide must work two-thirds clear in not over three pieces.

No piece of cutting in the No. 1 Common grade considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces.

Pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in the No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of sound cutting. No cutting less than 3 inches wide and 2 feet long.

CHERRY.

Grades: First and Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Thicknesses: ⅝, ¾, 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Firsts and Seconds.—Firsts and Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long, 6 or 7 inches wide, must be clear; pieces 8 inches or over wide will admit of one standard defect.

Pieces 10 feet or over long, 6, 7, or 8 inches wide, may have one standard defect; pieces 9, 10, or 11 inches wide may have two standard defects or their equivalent; pieces 12 inches or over wide may have three standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons are 4 inches or over wide, 6 to 16 feet long.

Pieces 4 or 5 inches wide must be clear one face and no defect admitted on the other face except sap to one-half the width of the piece.

Pieces 6 inches or over wide, 6 or 8 feet long, must work two-thirds in not over two pieces; pieces 10 feet or over long must work two-thirds in not over three pieces; all cuttings to have one clear face, and no piece of cutting considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6 or 8 feet long must work 50 per cent in three pieces; pieces 10 feet or over long must work 50 per cent in four pieces; all pieces of cutting must have one clear face, and no piece considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain 25 per cent of clear cutting; no piece of cutting considered which is less than 3 inches wide and 2 feet long.

NOTE.—Inspectors are cautioned to be careful in estimating the damage of Gum spots in grading Cherry. If excessive, they will reduce the board one or more grades. Ordinary gum spots are no defects in the Common grades.

CHESTNUT.

Grades: First, Second, No. 1 Common, and No. 2 Common or Sound Wormy

Widths: 3 inches or over.

Lengths: 4 feet or over.

Thicknesses: 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Firsts.—Firsts must be 8 inches or over wide, 10, 12, 14, and 16 feet long, and free from all defects except in pieces 10 inches or over wide, which may have one standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8, 10, 12, 14, and 16 feet long.

Pieces 8 feet long must be 8 inches or over wide; 8 or 9 inch widths must be clear; pieces 10 inches or over wide may have one standard defect.

Pieces 10 feet or over long, 6 or 7 inches wide, may have one standard defect, excepting knotholes and rafting-pin holes; pieces 8 or 9 inches wide may have one standard defect; pieces 10 or 11 inches wide may have two standard defects or their equivalent; pieces 12 inches or over wide may have three standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide, 6 to 16 feet long. Pieces 4 inches wide must be clear; 5-inch pieces may have one standard defect.

Pieces 6 feet long, 6 to 8 inches wide, must be clear; pieces 9 inches or over wide may have one standard defect.

Pieces 8 or 10 feet long, 6 inches or over wide, must work two-thirds clear in not over two pieces.

Pieces 12 feet or over long, 6 inches or over wide, must work two-thirds clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 2 feet long or 3 inches wide and 3 feet long.

No. 2 Commons or Sound Wormy.—No. 2 Commons or Sound Wormy must be 3 inches or over wide, 6 to 16 feet long.

Wormholes admitted in this grade without limit, but aside from wormholes the pieces must cut two-thirds sound.

Pieces 6, 8, or 10 feet long must work two-thirds sound in not over three pieces.

Pieces 12 feet or over long must work two-thirds sound in not over four pieces.

No piece of cutting considered in this grade which is less than 3 inches wide and 2 feet long.

COTTONWOOD.

Grades: Box Board, First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Thicknesses: ½, ⅝, ¾, 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Bright sap is no defect.

Box Boards.—Wide Box Boards must be 13 to 17 inches wide, 12, 14, and 16 feet long, and clear except slightly discolored sap, or one sound knot which does not exceed 1 inch in diameter and which shows on one side only, or splits not exceeding 6 inches in length in either end.

Narrow Box Boards must be 9 to 12 inches wide, 12, 14, and 16 feet long, and clear, except slightly discolored sap, or one sound knot which does not exceed 1 inch in diameter and which shows on one side only, or splits not exceeding 6 inches in length in either end.

Firsts.—Firsts must be 8 inches or over wide, 12, 14, or 16 feet long, and free from all defects except in pieces 10 inches or over wide, which may have one sound standard defect.

Seconds.—Seconds must be 6 inches or over wide, 10 to 16 feet long.

Pieces 6 or 7 inches wide must be clear; pieces 8 or 9 inches wide may have one standard defect; pieces 10, 11, or 12 inches wide may have two standard defects or their equivalent; pieces 13 inches or over wide may have three standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide, 8 to 16 feet long, not to exceed 20 per cent shorter than 12 feet.

Pieces 4 inches wide must have one clear face and two square edges; pieces 5 inches wide may have one standard defect; pieces 6 inches or over wide, 8 or 10 feet long, must work three-quarters clear in not over two pieces; pieces 6 inches or over wide, 12 feet or over long, must work three-quarters clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces; pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of sound cuttings. No piece of cutting considered which is less than 3 inches wide and 2 feet long.

Squares.—Cottonwood Squares or Columns are 4, 5, 6, 7, 8, 10, or 12 inches square and 8 to 16 feet long.

Firsts in 4, 5, and 6 inch squares must be clear.

Seconds in 4, 5, and 6 inch squares will admit of one sound standard defect.

Firsts in 7, 8, 10, and 12 inch squares may have one sound standard defect.

Seconds in 7, 8, 10, and 12 inch squares may have two sound standard defects.

Common Squares 8 and 10 feet long will admit knots, slightly stained sap and pinworm holes that will not interfere with their use for turning purposes; 12, 14, and 16 foot lengths will admit of more serious defects, but must be good enough so that at least 75 per cent of their length in one piece may be used for turning purposes.

Pieces below the grade of Common that will work 50 per cent for turning purposes shall be classed as culls.

ROCK ELM.

Grades: First and Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Thicknesses: 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Bright sap is no defect.

Firsts and Seconds.—Firsts and Seconds must be 4 inches or over wide, 8 to 16 feet long, not to exceed 20 per cent shorter than 12 feet long.

Pieces 4 or 5 inches wide must be clear; pieces 6 inches or over wide must be sound and work 80 per cent clear in not over two pieces. No cutting to be less than 4 inches wide and 8 feet long.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide, 6 to 16 feet long, not to exceed 20 per cent shorter than 12 feet, and must work two-thirds clear in not more than three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long, not to exceed 40 per cent under 12 feet, and must work at least 50 per cent sound in not over four pieces.

No piece of cutting in the No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of sound cutting.

SOFT ELM.

Grades: First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Thicknesses: 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Bright sap is no defect.

Firsts.—Firsts must be 8 inches or over wide, 10, 12, 14, and 16 feet long, and free from all defects, except in pieces 10 inches or over wide, which may have one sound standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be clear.

Pieces 10 feet or over long, 6, 7, or 8 inches wide, may have one standard defect; pieces 9, 10, or 11 inches wide may have two standard defects or their equivalent.

Pieces 12, 13, and 14 inches wide may have three standard defects or their equivalent; pieces 15 inches or over wide may have four standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 3 or 4 inches wide must have one face clear and two square edges.

Five-inch pieces may have one standard defect.

Pieces 6 feet long, 6 to 8 inches wide, must be clear; pieces 9 inches or over wide may have one standard defect.

Pieces 8 or 10 feet long and 6 inches or over wide must work two-thirds clear in not over two pieces.

Pieces 12 feet or over long and 6 inches or over wide must work two-thirds clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces.

Pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of sound cutting.

NOTE.—Black spots or streaks are serious defects and inspectors must be careful in estimating their damage. If they are excessive they will reduce the piece one or more grades.

RED GUM.

Grades: First and Second and No. 1 Common.

Widths: 4 inches or over.

Lengths: 8 feet or over.

In Firsts and Seconds pieces must have one red face and may have bright sap on the reverse side to the extent of one-fifth their width.

Firsts.—Firsts must be 8 inches or over wide, 12, 14, or 16 feet long, and free from all defects, except in pieces 10 inches or over wide, which may have one standard defect.

Seconds.—Seconds must be 6 inches or over wide, 10 to 16 feet long.

Pieces 6 or 7 inches wide must be clear; pieces 8 or 9 inches wide may have one standard defect; pieces 10, 11, or 12 inches wide may have two standard defects or their equivalent; pieces 13 inches and over wide may have three standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must have one red face and may have bright sap on the reverse side to the extent of one-fifth the width of the piece.

Pieces must be 4 inches or over wide, 8 to 16 feet long.

Pieces 4 inches wide must have one face clear and two squared edges; 5-inch pieces may have one standard defect.

Pieces 6 inches or over wide, 8 or 10 feet long, must work three-quarters clear in not over two pieces.

Pieces 6 inches or over wide, 12 feet or over long, must work three-quarters clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

SAP GUM.

Grades: First, Second, No. 1 Common, No. 2 Common, No. 3 Common, and Box Board.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Bright sap in the grades of First and Second is not a defect.

Firsts.—Firsts must be 8 inches or over wide, 12, 14, or 16 feet long, and free from all defects, except in pieces 10 inches or over wide, which may have one standard defect.

Seconds.—Seconds must be 6 inches or over wide, 10 to 16 feet long.

Pieces 6 or 7 inches wide must be clear. Pieces 8 or 9 inches wide may have one standard defect. Pieces 10, 11, or 12 inches wide may have two standard defects or their equivalent. Pieces 13 inches and over wide may have three standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide, 8 to 16 feet long.

Pieces 4 inches wide must have one face clear and two square edges; 5-inch pieces may have one standard defect.

Pieces 6 inches or over wide, 8 or 10 feet long, must work three-quarters clear in not over two pieces.

Pieces 6 inches or over wide, 12 feet or over long, must work three-quarters clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 2 feet long or 3 inches wide and 3 feet long.

Bright or slightly discolored sap is no defect in the common grades.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces.

Pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in the No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of clear cutting. No cutting to be considered which is less than 3 inches wide and 2 feet long.

Box Boards.—Wide Box Boards must be 13 to 17 inches wide, 12, 14, and 16 feet long, and clear, except slightly discolored sap, or one sound knot which does not exceed 1 inch in diameter and which shows on one side only, or splits not exceeding 6 inches in length in either end.

Narrow Box Boards must be 9 to 12 inches wide, 12, 14, and 16 feet long, and clear, except slightly discolored sap, or one sound knot which does not exceed 1 inch in diameter and which shows on one side only, or splits not exceeding 6 inches in length in either end.

HICKORY AND PECAN.

Grades: First and Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Thicknesses: 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Bright sap is no defect.

Firsts and Seconds.—Firsts and Seconds must be 4 inches or over wide, 8 to 16 feet long, not to exceed 20 per cent under 12 feet long.

Pieces 4 or 5 inches wide must be clear; pieces 6 inches or over wide must be sound and work 80 per cent clear in not more than two pieces.

No cutting in the First and Second grade considered which is less than 4 inches wide and 8 feet long.

The grade of Firsts and Seconds must have 25 per cent of clear lumber 12 feet or over long.

No. 1 Commons.—No. 1 Commons are 4 inches or over wide, 6 to 16 feet long, not over 20 per cent less than 12 feet long and must work two-thirds clear in not more than three pieces.

No piece of cutting in the No. 1 Common grade considered which is less than 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons includes all lumber below the grade of No. 1 Common that will work at least 50 per cent clear in not over four pieces.

No piece of cutting in the No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons are 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of clear cutting. No piece of cutting less than 3 inches wide and 2 feet long.

MAHOGANY.

Grades: Firsts, Seconds, Commons, Culls, Shorts, and Counters.

Length: 2 feet and over.

Widths: 3 inches and over.

Thicknesses: ½ inch and over.

Odd lengths are measured in mahogany.

Firsts.—Firsts are 7 inches and over wide, 10 feet and over long, and free from all defects, except in pieces 10 inches and over wide, which may have one sound standard defect.

Seconds.—Seconds are 6 inches and over wide, 8 feet and over long, not to exceed 10 per cent under 12 feet. Pieces 6 inches wide are clear. Pieces 7 to 9 inches wide may have one standard defect. Pieces 10 to 12 inches wide may have two standard defects. Pieces 13 inches and over wide may have three standard defects. The combined grade of Firsts and Seconds must contain 75 per cent of Firsts.

Common.—Commons are 4 inches and over wide, 8 feet and over long, not to exceed 30 per cent under 12 feet. Four and 5 inch pieces must be clear. Pieces 6 inches and over wide must work 75 per cent clear. No piece of cuttings in the Common grade considered which is less than 4 inches wide and 4 feet long.

Cull.—Culls are 3 inches and over wide, 2 feet and over long, and will admit all lumber not up to the grade of Common that will work 50 per cent clear. No piece of cuttings in Cull grade considered which is less than 3 inches wide and 3 feet long.

Shorts.—Shorts are 4 inches and over wide, 2 to 7 feet long, and must be Firsts and Seconds in quality.

Counters.—Counters are 12 to 40 feet long, 18 to 24 inches wide, and must be free from all defects. Splits to be measured out.

MAPLE.

Grades: First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Thicknesses: 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Bright sap is no defect.

Firsts.—Firsts must be 8 inches or over wide, 10, 12, 14, and 16 feet long, and free from all defects, except in pieces 10 inches or over wide, which may have one sound standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be clear.

Pieces 10 feet and over long, 6 and 7 inches wide, may have one standard defect; pieces 8 and 9 inches wide may have two standard defects or their equivalent.

Pieces 10, 11, and 12 inches wide may have three standard defects or their equivalent; pieces 13 inches and over wide may have four standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 3 inches or over wide, 6 to 16 feet long; pieces 3 or 4 inches wide must have one face clear and two square edges; 5-inch pieces may have one standard defect.

Pieces 6 feet long, 6 to 9 inches wide, may have one standard defect; pieces 10 inches and over wide may have two standard defects or their equivalent.

Pieces 8 or 10 feet long and 6 inches or over wide must work two-thirds clear in not over two pieces.

Pieces 12 feet or over long and 6 inches or over wide must work two-thirds clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces.

Pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of sound cutting.

Strips.—Maple Strips must be 3, 4, 5, or 6 inches wide, 6 to 16 feet long.

Grades: Clear, No. 1 Common, and No. 2 Common.

Clear Strips must be 10 to 16 feet long and show one face clear and two good edges.

No. 1 Common Strips must be 8 to 16 feet long, not to exceed 20 per cent shorter than 12 feet, and may have one standard defect showing on both faces.

No. 2 Common Strips must be 6 feet or over long and must work one-half clear in not more than three pieces. No piece of cutting to be less than 2 feet in length.

Step Plank.—Grades: First and Second and Common.

Widths: 11 to 15 inches.

Thicknesses: 1¼, 1½, and 2 inches.

Lengths: 10 to 16 feet.

Firsts and Seconds must be clear one face and one edge. The reverse side and one edge must be sound. Firsts and Seconds may have a split not exceeding 12 inches in length.

Commons include all lumber below the grade of Firsts and Seconds that will work two-thirds of the length clear; no cutting to be less than 4 feet long by the full width of the piece.

Maple Squares: Pieces 4x4, 5x5, 6x6, 7x7, 8x8, 8 to 16 feet long must grade Firsts and Seconds on three sides and No. 1 Common on the heart side, same to be graded as Firsts and Seconds.

PLAIN-SAWN RED AND WHITE OAK.

Grades: First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Six and 7 inch widths, bright sap up to one-third the width of the piece on one face is no defect. Pieces 8 inches and over wide, bright sap on one face is no defect.

Firsts.—Firsts must be 8 inches or over wide, 10, 12, 14, or 16 feet long, and free from all defects, except in pieces 10 inches or over wide, which may have one sound standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be 8 inches or over wide; pieces 8 or 9 inches wide must be clear; pieces 10 inches or over wide may have one standard defect.

Pieces 10 feet or over long, 6 or 7 inches wide, and free from sap may have one standard defect; pieces 8 or 9 inches wide may have one standard defect; pieces 10 or 11 inches wide may have two standard defects or their equivalent; pieces 12 inches or over wide may have three standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide, 6 to 16 feet long.

Bright sap is no defect in the Common grades.

Pieces 6 feet long, 6 to 8 inches wide, must be clear; pieces 9 inches or over wide may have one standard defect.

Not over 10 per cent of 6-foot lengths admitted in the No. 1 Common grade.

Four-inch pieces must have one face clear and two square edges; 5-inch pieces may have one standard defect.

Pieces 6 inches or over wide, 8 or 10 feet long, must work two-thirds clear in not over two pieces.

Pieces 6 inches or over wide, 12 feet or over long, must work two-thirds clear in not over three pieces.

No piece of cutting in the No. 1 Common grade considered which is less than 4 inches wide and 2 feet long, or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces. Pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in the No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must have at least 25 per cent of clear cutting; no piece of cutting considered which is less than 3 inches wide and 2 feet long.

Strips.—Plain sawed oak strips must be 1 or 1¼ inches thick, 2½, 3, 3½, 4, 4½, 5, or 5½ inches wide, 8 to 16 feet long.

Grades: Clear and Common.

Clear strips must be 8 to 16 feet long and must show one face and two edges clear of all defects, excepting sap, and the face must be clear of sap.

Common strips must be 8 to 16 feet long and they must not be to exceed 20 per cent shorter than 12 feet. They must work three-quarters clear in not more than two pieces. No piece of cutting considered which is less than 4 feet long by the full width of the piece.

Strips must be measured so they will be full widths when seasoned.

NOTE.—Stains and streaks in oak are a serious defect, and inspectors are cautioned to be careful in estimating their damage to pieces, as ofttimes they will reduce them below the grade of Firsts and Seconds.

Common Dimension.—Dimension sawed common oak plank and timbers used for car and building purposes must be free from wind shake, dry rot, rotten knots, or defects which impair the strength of the piece. Tight hearts, well boxed, in this material shall be considered no defect.

QUARTER-SAWN RED AND WHITE OAK.

Grades: First and Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Firsts.—Firsts must be 7 inches or over wide, 10, 12, 14, and 16 feet long, and free from all defects except in pieces 9 inches or over wide, which may have one standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be 7 inches or over wide; 7 or 8 inch pieces must be clear; 9 inches or wider may have one standard defect.

Pieces 10 feet or over long and 6 or 7 inches wide may have one standard defect; pieces 8 or 9 inches wide may have one standard defect besides 1 inch of bright sap; pieces 10 or 11 inches wide may have two standard defects or their equivalent, besides 1 inch of bright sap; pieces 12 inches or over wide may have three standard defects or their equivalent, besides 1 inch of bright sap.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide, 6 to 16 feet long. Bright sap is no defect in the Common grades.

Pieces 6 feet long, 6 to 8 inches wide, must be clear; pieces 9 inches or over wide may have one standard defect.

Pieces 8 feet or over long, 4 or 5 inches wide, may have one standard defect.

Pieces 8 or 10 feet long, 6 inches or over wide, must work two-thirds clear in not over two pieces.

Pieces 12 feet or over long, 6 inches or over wide, must work two-thirds clear in not over three pieces.

No piece of cutting in the No. 1 Common grade considered which is less than 4 inches wide and 2 feet long or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long. Sixty per cent must be 6 inches or over wide.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces; pieces 12 feet or longer must work 50 per cent clear in not over four pieces.

No piece of cutting in No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of clear cutting.

No piece of cutting in the No. 3 Common grade considered which is less than 3 inches wide and 2 feet long.

Strips.—Grades: Clear and Common.

Quarter-sawed oak strips are 1 or 1¼ inches thick, 2½, 3, 3½, 4, 4½, 5, or 5½ inches wide, and 8 to 16 feet long.

Clear strips are 8 to 16 feet long. Pieces 2½, 3, or 3½ inches wide must show one face and two edges clear of all defects. Pieces 4 inches or over wide may have 1 inch of bright sap on face side.

Commons must be 8 to 16 feet long, not to exceed 20 per cent shorter than 12 feet, and must work three-fourths clear in not more than two pieces. No piece of cutting must be considered which is less than 4 feet long by the full width of the piece.

Strips must be measured so they will be full width when seasoned.

NOTE.—Stains and streaks in quarter-sawed oak are serious defects and inspectors are cautioned to be careful in estimating their damage to pieces, as ofttimes they will reduce them below the grade of Firsts and Seconds. All quarter-sawed oak must show figure on one face.

POPLAR.

Grades: First, Second, Sap Clear, No. 1 Common, No. 2 Common, No. 3 Common, and Box Board.

Length: 6 to 16 feet.

Widths: 3 inches or over.

The combined grade of Firsts and Seconds must contain at least 50 per cent of Firsts.

Firsts.—Firsts from 1 to 4 inches in thickness must be 8 inches or over wide, 10 to 16 feet long.

Pieces 8, 9, or 10 inches wide must be clear; pieces 11 or 12 inches may have 2 inches of bright sap; pieces 13, 14, or 15 inches wide may have 2 inches of bright sap or one standard defect; pieces 16 inches or over wide may have 3 inches of bright sap or two standard defects or their equivalent.

Seconds.—Seconds must be 8 inches or over wide, 10 to 16 feet long.

Pieces 8 or 9 inches wide may have 1 inch of bright sap, but no other defects; pieces 10 11, or 12 inches wide may have 3 inches of bright sap and one standard defect; pieces 13 inches or over wide may have 5 inches of bright sap and one standard defect, or two standard defects or their equivalent if there be no sap.

The combined grade of Firsts and Seconds must not contain to exceed 10 per cent of 10-foot lengths.

Three-eighths, ½, ⅝, and ¾ inch Firsts and Seconds must be 8 inches or over wide and contain not less than two-thirds of Firsts.

Sap Clears.—Sap Clears must be 6 inches or over wide, 10 to 16 feet long, but not to exceed 10 per cent of 10-foot lengths admitted, and free from all defects except bright sap.

No. 1 Commons.—No. 1 Commons must be 5 inches or over wide, 8 to 16 feet long. Slightly discolored sap is no defect in this grade.

Pieces 8 or 10 feet long must work two-thirds clear in not over two pieces; pieces 12, 14, or 16 feet long must work two-thirds clear in not over three pieces.

No piece of cutting in No. 1 Common grade considered which is less than 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 4 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work one-half clear in not over three pieces; pieces 12 to 16 feet long must work one-half clear in not over four pieces.

No piece of cutting considered in No. 2 Common grade which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 6 feet or over long, and must have at least 25 per cent of sound cutting.

No piece of cutting considered which is less than 3 inches wide and 2 feet long.

Strips.—Poplar Strips must be 4, 5, 6, and 7 inches wide.

Grades: Clear and Second Clear.

Clears shall be free from all defects except 1 inch of bright sap on 7-inch pieces.

Second Clear may have bright sap, but must be free from all other defects.

Strips must be measured so they will be full width when seasoned.

Squares.—Firsts and Seconds shall be 4, 5, 6, 7, 8, or 10 inches square, and 8, 9, 10, 12, 14, 16, and 18 feet long. 4 by 4 must be clear of all defects except 1 inch of bright sap; 5 by 5 and up, bright sap is no defect. Hearts must not be admitted in the grade of Firsts and Seconds.

Common Squares shall be of the same sizes and lengths as Firsts and Seconds Squares. Bright sap shall not be considered a defect. Sound knots, pinworm holes, and slightly stained sap admitted.

Pieces below the grade of Common that will work 50 per cent for turning purposes shall be classed as culls.

The grade of "turning squares" is a special grade.

Box Boards.—Wide Box Boards must be 13 to 17 inches wide, 12, 14, and 16 feet long, and clear, except slightly discolored sap, or one sound knot which does not exceed 1 inch in diameter and which shows on one side only, or splits not exceeding 6 inches in length in either end.

Narrow Box Boards must be 9 to 12 inches wide, 12, 14, and 16 feet long, and clear, except slightly discolored sap, or one sound knot which does not exceed 1 inch in diameter and which shows on one side only, or splits not exceeding 6 inches in length in either end.

PLAIN SAWN SYCAMORE.

Grades: First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Thicknesses: ⅝, ¾, ⅞, 1, 1¼, 1½, 2, 2½, 3, and 4 inches.

Bright sap up to one-third the width of board one side is no defect, except as otherwise specified.

Firsts.—Firsts must be 8 inches or over wide, 10, 12, 14, or 16 feet long and free from all defects, except in pieces 10 inches or over wide, which may contain one sound standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be 8 inches or over wide; pieces 8 or 9 inches wide must be clear; pieces 10 inches or over wide may have one standard defect.

Pieces 10 feet or over long, 6 or 7 inches wide and free from sap, may have one standard defect; pieces 8 or 9 inches wide may have one standard defect; pieces 10 or 11 inches wide may have two standard defects or their equivalent; pieces 12 inches or over wide may have three standard defects or their equivalent.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide, 6 to 16 feet long.

Bright sap is no defect in the Common grades.

Pieces 6 feet long, 6 to 8 inches wide, must be clear; pieces 9 inches or over wide may have one standard defect. Not over 10 per cent of 6-foot lengths admitted in the No. 1 Common grade.

Four-inch pieces must have one face clear and two square edges; 5-inch pieces may have one standard defect.

Pieces 6 inches or over wide, 8 or 10 feet long, must work two-thirds clear in not over two pieces.

Pieces 6 inches or over wide, 12 feet or over long, must work two-thirds clear in not over three pieces.

No piece of cutting in the No. 1 Common grade considered which is less than 4 inches wide and 2 feet long or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces. Pieces 12 feet or over long must work 50 per cent clear in not over four pieces.

No piece of cutting in the No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of clear cutting; no piece of cutting considered which is less than 3 inches wide and 2 feet long.

QUARTER-SAWN SYCAMORE.

Grades: First, Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Two inches of bright sap is a standard defect.

Firsts.—Firsts must be 7 inches or over wide, 10, 12, 14, and 16 feet long and free from all defects, except in pieces 9 inches or over wide, which may have one standard defect.

Seconds.—Seconds must be 6 inches or over wide, 8 to 16 feet long.

Pieces 8 feet long must be 7 inches or over wide; 7 or 8 inch pieces must be clear; 9 inches or wider may have one standard defect.

Pieces 10 feet or over long and 6 or 7 inches wide may have one standard defect; pieces 8 or 9 inches wide may have one standard defect, besides 2 inches of bright sap; pieces 10 or 11 inches wide may have two standard defects or their equivalent, besides 2 inches of bright sap; pieces 12 inches or over wide may have three standard defects or their equivalent, besides 2 inches of bright sap.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide, 6 to 16 feet long; 75 per cent must be 6 inches or over wide.

Bright sap is not a defect in the common grades.

Pieces 6 feet long, 6 to 8 inches wide, must be clear; pieces 9 inches or over wide may have one standard defect.

Pieces 8 feet or over long, 4 or 5 inches wide, may have one standard defect.

Pieces 8 or 10 feet long, 6 inches or over wide, must work two-thirds clear in not over two pieces.

Pieces 12 feet or over long, 6 inches or over wide, must work two-thirds clear in not over three pieces.

No piece of cutting in the No. 1 Common grade considered which is less than 4 inches wide and 2 feet long or 3 inches wide and 3 feet long.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide, 6 to 16 feet long; 60 per cent must be 6 inches or over wide.

Pieces 6, 8, or 10 feet long must work 50 per cent clear in not over three pieces; pieces 12 feet or longer must work 50 per cent clear in not over four pieces.

No piece of cutting in No. 2 Common grade considered which is less than 3 inches wide and 2 feet long.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent of clear cutting.

No piece of cutting in No. 3 Common grade considered which is less than 3 inches wide and 2 feet long.

WALNUT.

Grades: First and Second, No. 1 Common, No. 2 Common, and No. 3 Common.

Widths: 3 inches or over.

Lengths: 4 feet or over.

Thicknesses: ⅜, ½, ⅝, ¾, 1, 1¼, 1½, 2, 2½, 3, 3½, and 4 inches.

All grades of Walnut must be measured in odd and even lengths.

Firsts and Seconds.—Firsts and Seconds must be 6 inches or over wide, 8 feet or over long, with not to exceed 25 per cent of 8 and 9 foot lengths.

Pieces 6 or 7 inches wide may have one standard knot and ¾-inch sap on each side.

Pieces 8 or 9 inches wide may have two standard knots and 1 inch of bright sap on each side.

Pieces 10 or 11 inches wide may have three standard knots and 2 inches of bright sap on one side and 1 inch of bright sap on the other side.

Pieces 12 inches or over wide may have three standard knots and 3 inches of bright sap on one side and 1½ inches of bright sap on the other side.

No. 1 Commons.—No. 1 Commons must be 4 inches or over wide.

Pieces 4 or 5 inches wide may have two standard knots and ½ sap on other side.

Pieces 6 inches or over wide must work three-quarters clear; no piece of cutting to be less than 3 inches wide and 4 feet long.

Each cutting in this grade must have one clear face and not to exceed ½ sap on the reverse side.

No. 2 Commons.—No. 2 Commons must be 3 inches or over wide and shall include all lumber not up to grade of No. 1 Common that will work one-half clear. No piece of cutting to be less than 3 inches wide and 3 feet long.

Each cutting in this grade must have one clear face. Sap may be on the reverse side.

No. 3 Commons.—No. 3 Commons must be 3 inches or over wide, 4 feet or over long, and must contain at least 25 per cent clear cutting. No cutting to be less than 3 inches wide and 2 feet long.

Note.—Walnut ordered for any thicknesses different from the foregoing thicknesses or for molding strips, clear face, squares, chair stock, table top, or other dimensions shall be subject to contract between buyer and seller, and to be arbitrated, if necessary, between buyer and seller by regular authorized inspector, who shall be furnished with conditions of contract.

NATIONAL VENEER AND PANEL MANUFACTURERS' ASSOCIATION.

A temporary organization was formed at Cincinnati, Ohio, on November 29, 1905, which was made permanent on December 19, 1905, at Chicago. One of the principal objects of the association is to secure a more uniform product. Manufacturers only of veneer and panels are eligible to active membership. The following uniform grading rules were adopted.

GRADING RULES.

ROTARY CUT.

Oak shall be graded as follows:

1. The Grades shall be No. 1 Faces, No. 2 Faces and Backs.

2. The No. 1 Faces consist of veneer 6″ to 24″ wide—not over 10 per cent 6″ wide— 6″ to 13″ width are to be free from defects; veneers 13″ to 18″ wide will admit of one standard defect; veneers 18″ to 21″ wide will admit of two standard defects; veneers 21″ to 25″ wide will admit of one small knot and three standard defects. This grade will admit of one inch of sap on the edges on all veneers 10″ and over wide.

No. 2 Faces consist of veneers 6″ to 24″ wide and admit of all standard defects but are not to have more than one pinworm hole to the square foot. Clear sap is admitted in this grade and not considered a defect.

Backs will admit of veneers 6″ to 24″ wide and admit of sap and sound knots and holes not over ½″ in diameter and splits open not to exceed ½″.

Standard defects—Streak not over 3″ long.
Brown spots.
Pin worm hole.

Closed splits not over 3″ long are not considered a defect. Splits 6″ long, open ¼ or under are considered a standard defect.

Birch, basswood, cottonwood, poplar, gum, and other woods shall be graded as follows:

Clear.—No. 1 or drawer bottoms and glass backs; No. 2 or filler stock. This grade shall be perfect, allowing only agreed defects, and will be considered as special stock.

No. 1.—This grade shall consist of stock closely and evenly cut; slight defects such as sound knots, discoloration, short closed splits permissible.

No. 2.—Will allow knot holes of not to exceed one inch in diameter, slight shakes, checks, and wormholes; enough 2-piece and 3-piece stock shall be taken to work up waste while cutting regular widths.

NORTH CAROLINA PINE ASSOCIATION, INCORPORATED.

The first organization formed in North Carolina was called the Carolina Pine Lumber Association. It was organized early in 1888, and in May of that year a card of grading rules was adopted.

In 1889 this organization was superseded by the North Carolina Pine Lumber Company, which on November 11, 1890, adopted a set of rules in which four grades were described. Below these all lumber was called mill culls. Length for flooring was specified.

In 1897 the North Carolina Pine Association was organized, and on December 7 of the same year adopted a set of rules in which the grades were still further described and sizes specified.

On March 15, 1903, these rules were amended, and on December 15, 1904, again amended. In the fall of 1905 the rules were still further amended and a set of rules for trimming was published. A bureau of grades was established in 1904, and one inspector travels from mill to mill, regulating grades and adjusting disputes.

The territory covered is Virginia, North Carolina, and South Carolina.

In November, 1905, the South Carolina Lumber Association was merged with this association.

Output, 1905, 1,000,000,000 feet.

[The North Carolina Pine Association, Incorporated. Rules for the classification and inspection of North Carolina Pine. Revised to April 1, 1906.]

DEFINITIONS.

Narrow Edge—also called Edge—contains all widths under 12 inches except stock widths—6-inch, 8-inch, 10-inch, and 12-inch.

Wide Edge contains all widths over 12 inches.

Knots: Referred to as sound, rotten, loose, encased, and tight, as to quality.

A loose knot is one that will come out.

An encased knot is one surrounded by bark or pitch.

A tight knot is one that will not come out.

A pin knot is a knot under ½ inch diameter.

The diameter of an oblong knot is the mean between its greater and lesser diameters.

A spike or horn knot is a knot sawed nearly or altogether lengthwise.

Pitch: Pitch pockets are openings between the grain of the wood and may contain pitch or bark or both.

A standard pitch pocket is not over ½ inch wide nor over 3 inches long, (measured over all).

A small pitch pocket is one not over ⅜ inch wide nor over 2 inches long, (measured over all).

Pitch streaks are simply accumulations of pitch at different portions of the board.

WIDTHS OF LUMBER.

Nos. 1 and 2, 4-4 edge, to be 3 inches wide and up.

Nos. 3 and 4, 4-4 edge, to be 4 inches wide and up.

Nos. 1 and 2, 5-4 edge, to be 4 inches wide and up.

Nos. 1 and 2, 6-4 edge, to be 5 inches wide and up.

Nos. 1 and 2, 8-4 and thicker edge, to be 6 inches wide and up.

ROUGH LUMBER.

All lumber shall be well manufactured and well dried.

The basis of inspection shall be the best or face side of each piece.

Grades.—No. 1, No. 2, No. 3, Box, Mill Culls, Red Heart, and Bark Strips.

No. 1.—No. 1 grade, under 12 inches wide, shall have one side clear of all defects except 5 per cent pitch streaks, the other side to grade No. 2 or better. Lumber over 12 inches wide, in addition to the pitch streaks, may have one small pitch pocket or sound pin knot for every additional three inches of width.

No. 2.—No. 2 grade shall consist of boards with small tight knots on the best side and will permit 15 per cent of pitch streaks, the other side to grade No. 3 or better; no knot in a board up to six inches wide to exceed one inch in diameter, and in boards above that width no knot to exceed one and one-half inches in diameter. The aggregate diameters of knots not to exceed one and one-quarter inches for every three inches in width of the board. Standard pitch pockets to be treated the same as knots.

No. 3.—No. 3 grade shall consist of tight-knotted boards below the grade of No. 2 with clear edges on the face side. Stock boards shall have one edge clear one-fourth the width of the board on the face side; no knot in a board up to four inches wide to exceed one and one-half inches in diameter, up to six inches wide one and three-fourths inches, and above that width two inches, admitting black pin knots; pinney boards that would otherwise grade No. 1 or No. 2, No. 1 boards showing 50 per cent pitch; No. 2 boards showing 25 per cent pitch; the reverse side to grade equal to Box.

Box.—Box grade shall consist of coarse knotted boards and pinney and pitchy boards that would otherwise grade No. 2 or No. 3.

Mill Culls.—Mill culls shall be all boards, excepting Red Heart, below the grade of Box, and shall be unsound, loose, or rotten knotted, and otherwise defective boards which can be used without a waste exceeding 25 per cent.

Red Heart.—This grade of lumber to be 66⅔ per cent firm wood, so that it may be cut up with a waste of not exceeding 33⅓ per cent.

Bark Strips.—Nos. 1 and 2 Bark Strips shall show one-half inch of wood at the thinnest point and shall grade equal to or better than No. 2 lumber.

Box Bark Strips shall contain all Bark Strips falling below the grade of Nos. 1 and 2.

STANDARD LENGTHS OF ROUGH LUMBER.

10, 12, 14 and 16 feet.

DRESSED LUMBER.

FLOORING, CEILING, PARTITION, AND FINISH.

All lumber shall be well manufactured and dried.

The basis of inspection shall be the best or face side of each piece.

Grades.—No. 1, No. 2, No. 3, No. 4.

No. 1.—This grade, up to 6-inch strip, shall have the face side practically clear of all defects, admitting 5 per cent of pitch streaks; strips over 6 inches wide may have one sound pin knot or small pitch pocket for each two inches of width over 6 inches.

No. 2.—This grade shall admit small sound knots on the face side and 15 per cent pitch streaks; the reverse side to grade No. 4 or better; no knot in a strip up to 6 inches wide to exceed one inch in diameter; wider strips may have knots 1½ inches diameter. The aggregate diameter of knots or defects not to exceed 1½ inches for every 3 inches of width of strip; standard pitch pockets to be treated the same as knots.

No. 3.—This grade shall consist of knotty boards below the grade of No. 2; no knot to exceed in diameter one-half the width of the strip and no knot over 2 inches diameter allowable in strips 6 inches and under; wider strips may have knots 2½ inches diameter; admitting small encased knots and small spike or horn knots and 30 to 40 per cent of pitchy streaks, also pinney boards that would be otherwise classed as No. 1 or 2, and No. 1 and 2 boards showing 50 per cent pitch. No limit as to quantity of knots in this grade.

No. 4.—This grade to consist of all lumber below the grade of No. 3 and that can be laid without wasting over 25 per cent of any one piece.

Factory Flooring and Roofers shall grade the same as Box lumber. Unless otherwise specified, roofers shall be worked, tongued, and grooved.

STANDARD LENGTHS OF DRESSED LUMBER.

Flooring and Finish: 10, 12, 14, and 16 feet.

Ceiling and Partition: 8, 10, 12, 14, and 16 feet.

DRESSING.

One-eighth inch shall be allowed to dress 4-4, 5-4, 6-4, and 8-4 lumber one side.

Three-sixteenths inch shall be allowed to dress 4-4 and 5-4 lumber two sides.

One-fourth inch shall be allowed to dress 6-4 and thicker lumber two sides

MATCHING.

All flooring, ceiling, and partition 3-4 inch thick and over shall be dressed two sides and center matched.

All ceiling under 3-4 inch thick shall be dressed one side and matched.

COUNT.

All lumber shall be counted by nominal or strip size, which is ½ inch wider than actual finished size in all regular patterns and standard matched flooring, ceiling, and partition. One-half inch in width shall be allowed for working molded base and casing, except on standard patterns finished on the ¼″ or ¾″, for which shall be allowed ¼″.

NORTHERN PINE MANUFACTURERS' ASSOCIATION.

This association deals chiefly with white pine, though Norway pine and hemlock are also graded by it. When organized it was called the Mississippi Valley Lumbermen's Association. Later it cooperated in grades with the Wisconsin Valley Lumbermen's Association, and finally (January 23, 1906) the two associations were merged into one—the present Northern Pine Manufacturers' Association.

A system of inspection was originated by the Wisconsin Valley Association in the eighties. This was more or less local, and it was not until the Mississippi Valley Lumbermen's Association was organized that there was an attempt to inspect all white pine lumber produced. In the spring of 1890 a committee was appointed by the lumber manufacturers of the Northwest to ascertain the condition of pine grades of the inland plants of Wisconsin and Minnesota, which is believed to be the first concerted effort made by the pine manufacturers of the Northwest to investigate and compare the grades of diferent plants. The Mississippi Valley Lumbermen's Association was organized September 1, 1891. Soon after this the Wisconsin lumbermen of Eau Claire and other points employed an inspector to visit their plants for the purpose of establishing uniform grades. In the spring of 1893 a similar effort was made by the manufacturers of La Crosse, Wis., and Winona, Minn. All this work was later consolidated under the Bureau of Grades of the Mississippi Valley Lumbermen's Association. That bureau compiled a code of grading rules which was issued in February, 1895. The second edition was issued March 1, 1897, the third March 1, 1899, the fourth September 5, 1900, the fifth January 1, 1904, and the last April 15, 1906. Practically the only material difference in the various editions are changes made in phraseology and in the substitution of certain examples.

At present there are seven inspectors to regulate grades at the mills and to settle disputes between the manufacturer and the purchaser. The specifications have been adopted very widely among consumers, including Departments of the Government. Many associations have organized inspection on this system, as the Yellow Pine Manufacturers' Association, the North Carolina Pine Association, Incorporated, and the Western Pine Manufacturers' Association. The grades of the California Sugar and White Pine Agency have been modeled closely on the white pine grades. In all respects this association has had an influence, both direct and indirect, throughout the whole country in standardizing grades. The output of the association in 1905 was 2,000,000,000 feet of lumber.

Mills located on the Great Lakes, which ship by water to Eastern jobbing centers, do not as yet cooperate with this association. The lumber manufactured by them is graded as it is loaded on the vessel by an inspector who represents both the producer and the purchaser.

[Association Standard Grades. Rules for the Grading of Pine and Hemlock Lumber. Reported by the Bureau of Grades and adopted by the Northern Pine Manufacturers' Association and the Northwestern Hemlock Manufacturers' Association. Edition of April 15, 1906.]

GRADES AND NOMENCLATURE.

The following are the standard grades adopted and the terms by which they are to be known:

THICK FINISHING.

1st, 2d and 3d Clear, 1¼, 1½ inch.
A Select, 1¼, 1½ and 2-inch.
B Select, 1¼, 1½ and 2-inch.
C Select, 1¼, 1½ and 2-inch.
D Select, 1¼, 1½ and 2-inch.

INCH FINISHING.

1st, 2d and 3d Clear.
A Select.
B Select.
C Select.
D Select.
D Stock.
C and Better Norway.

SIDING.

A and Clear.
B
C
D
E

FLOORING.

A Flooring.
B Flooring.
C Flooring.
D Flooring.
Shaky Clear Flooring.
No. 1. Fencing D & M.
No. 2. Fencing D & M.
No. 3. Fencing D & M.

SHIP LAP, GROOVED ROOFING, AND D & M.

No. 1.
No. 2.
No. 3.

SHOP COMMON.

No. 1 Shop.
No. 2 Shop.
No. 3 Shop.
Inch Shop.
Short Box.

FACTORY SELECTS.

Factory A Select and Better.
Factory B Select.
Factory C Select.

THICK COMMON LUMBER.

Tank Stock.
Select Common.
Step Plank.
Flat Common.
No. 1 Box.
No. 2 Box.

COMMON BOARDS.

No. 1.
No. 2.
No. 3.
No. 4.
No. 5.

FENCING.

No. 1.
No. 2.
No. 3.
No. 4.

DIMENSION.

No. 1.
No. 2.
No. 4 or Cull.

RULES FOR GRADING PINE LUMBER.

GENERAL INSTRUCTIONS.

The aim of the uniform grading inspection is to harmonize the natural differences which exist in the characteristics of the different stocks cooperating in this bureau, making lumber of the same grades, at the different manufacturing points, of practically equal value, whether the logs from which the lumber is cut are large or small, coarse-knotted, fine-knotted, black-knotted, red-knotted, sound or shaky.

1. No arbitrary rules for the inspection of lumber can be maintained with satisfaction. The variations from any given rule are numerous and suggested by practical common sense, so nothing more definite than the general features of different grades should be attempted by rules of inspection. The following, therefore, are submitted as the general characteristics of the different grades.

2. In the grading of finished lumber in common practice there is a recognized difference in classifying inch lumber and lumber thicker than inch.

3. A very large percentage of the 1¼, 1½, and 2 inch lumber used for finishing purposes goes into work requiring each face to be shown—as in doors, sash, etc. With inch lumber, except shop common and partition, the uses are quite different, the almost invariable practice being that one face of the board is shown, and that face the better one.

4. The face side of the lumber is the side showing the best quality or appearance.

5. Defects in lumber should be distributed in proportion to the size of the piece. Long or wide pieces of the same grade may contain more and greater defects than shorter or

narrow pieces. The same percentage should be observed in both long and short, wide and narrow.

6. Wane in lumber is a defect which can not be described by rule with satisfaction, and therefore must be left to the judgment of the grader.

7. In a general way, D & M stock, except No. 3, should have a good bearing on back, and lumber S 1 S or S 2 S show nearly a full face.

8. The lowering of grade on the face side on account of wane should be governed by grade, width, and defects in the piece.

9. Due consideration in rough stock should be given for the amount of wane that would be surfaced off in milling.

10. Lumber must be accepted on grade in the form in which it was shipped. Any subsequent change in manufacture or millwork will prohibit an inspection for the adjustment of claims, except with the consent of all parties interested.

11. Mixed width boards do not necessarily require as good edges as shiplap or dressed and matched stock of the same grade.

12. Planing-mill work should be taken into consideration in all grades of dressed lumber, and its effect on a piece must be left largely to the judgment of the inspector.

13. Thick C Select, except for factory purposes, should be graded on its best side or face, not so much attention being given to the back; but in the grades of B Select and Better the backs should, as a rule, be within one grade of the face.

14. The grade of partition shall be determined from its poorer side.

15. Lumber when worked shall be graded the same as the respective grades when in the rough.

16. Unless otherwise provided for, lumber worked two sides shall be graded from its better side or face; lumber worked one side shall be graded from its surfaced face.

17. The examples given in this book do not in all cases include all of the different types in any grade.

18. The interpretation of any grade is intended to cover all lumber between the next higher grade above and the next grade below.

19. It is not contemplated by these rules to cover car siding and roofing, the grades of which should be determined by special agreement.

ASSOCIATION STANDARD GRADES.

FINISHING.

CLEARS.

First Clear.—This should be twelve inches and over in width and free from all defects.

Second Clear.—This should be ten inches and over in width. When ten inches wide it should be free from all defects. A twelve-inch board must have a perfect face. A one-half inch of white sap on each edge or one inch of sap on one edge of back is allowed. In the absence of sap one or two small pin knots not to exceed one-half inch in diameter are admissible. Pieces wider than twelve inches must have a perfect face, but can have sap or knot defects proportionately greater as the piece is wider.

Third Clear.—This should be eight inches and over in width. A piece eight inches wide should be free from all defects on both faces. In a ten-inch piece one or two small knots, not to exceed one-half inch in diameter, or in the absence of knots white sap not to exceed one-half inch in width on each edge or one inch in width on one edge is admissible. A piece from twelve inches to fourteen inches wide may have one inch of white sap on each edge of face or more sap on one edge. In the absence of sap or with less sap one or two small knots an inch in diameter are admissible. Wider stock can have more sap or slightly larger knots. The reverse side of Third Clear ten inches and wider should not show poorer in quality than "A" Select face.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x14-16. Face side has a black knot on edge one and one-fourth by one inch two feet from end, but not showing through. One small black knot one-half inch in diameter one foot from end, balance of face side clear. Reverse side shows one inch of white sap for six feet on one edge and about one foot slightly discolored sap.

Example 2.—Piece 1x18-16. Face side shows two half-inch black knots and two small pin knots near one end, also a half-inch black knot near center. Reverse side shows practically the same defects except the knots are slightly larger.

Example 3.—Piece 1x16-16.—Shows an inch and a half of white sap for eight feet on one edge of the face side; no other defects. Reverse side shows three inches of white sap for twelve feet on one edge. No other defects.

Example 4.—Piece 1x12-14. Face side shows one and one-half inches white sap on each edge for four feet at one end; one small knot one-half inch in diameter near other end. Reverse side shows three inches of white sap for twelve feet on one edge and two inches of white sap on other edge full length of the piece, and two small knots one-half inch in diameter.

Example 5.—Piece 1x10-16. Has one clear face. Reverse side has one inch of slightly stained sap for two feet on one edge. Otherwise perfect.

Example 6.—Piece 1x8-16. This piece is free from all defects on both sides.

"A" SELECT.

1. "A" Select should be eight inches and over in width. On the face side an eight-inch piece should be nearly perfect. An inch of white sap on one edge or one or two sound knots not to exceed one-half inch in diameter are admissible.

2. A ten-inch piece will admit of an inch and a half of white sap full length of one edge or less sap on both edges of face with no other defects, or will admit of two or three knots one-half inch in diameter if well scattered, or one or two knots not over an inch in diameter if well located.

3. Pieces fourteen inches and wider will admit of proportionately greater sap and knot defects as width increases, or very sightly local shake, or a straight split for six or eight inches, or one or two large wormholes near end or edge.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x8-16. Shows one-half inch of white sap on one edge full length of the piece and one small knot one-half inch in diameter.

Example 2.—Piece 1x10-16. The face side has a quarter inch of slightly colored sap for one foot; otherwise perfect. Reverse side shows a little sap slightly blue on two edges.

Example 3.—Piece 1x10-16. Is perfect on both sides, except a slight local shake in one spot.

Example 4.—Piece 1x10-16. Very smooth in appearance, with one knot three-quarters of an inch two feet from one end; another smaller knot near other end; also one inch of white sap two feet in length at one end and one-half inch of sap on opposite edge of other end.

Example 5.—Piece 1x12-16. On face side has one knot one and one-half inches in diameter and one pin knot, both going through the board; otherwise perfect.

Example 6.—Piece 1x12-16. Has two three-fourth-inch knots that go through the board, and an inch of white sap on one edge full length of piece.

Example 7.—Piece 1x14-16. Face side shows one small knot a half inch in diameter. A half inch of stained sap for two feet on one edge at center of board. Reverse side at center has two inches of stained sap on one edge for five feet and other edge has one inch of stained sap for four feet. This is considered a high type of "A" Select.

Example 8.—Piece 1x16–16. Face side shows two black knots, one inch in diameter near one end and three small pin knots. Reverse side shows two knots 1 inch in diameter at one end. On one edge three inches of white sap for ten feet. Other edge has two inches of slightly colored sap for eight feet.

Example 9.—Piece 1¼x16-16. One face has two inches of sap full length of one edge, discolored in streaks. Reverse side shows three-fourths inch wane for three inches, and three inches slightly colored sap full length of one edge.

Example 10.—Piece 1¼x19-16. Face shows a five-eighths inch black knot one foot from end. At same end on opposite corner a check eight inches long. At the other end is a light shake for ten inches in center; also at the left from same end near edge, a pitch pocket one and one fourth inches long. No sap on this face. Reverse side shows one-fourth to three-fourths inch worm-eaten sap for eight feet on one edge; the small black knot at end shows through from face side.

"B" SELECT.

1. "B" Select should be eight inches and over in width.

2. In this grade white sap is not considered a defect unless too many other imperfections appear.

3. Knots, shake and a small amount of stained sap are admissible.

4. An eight-inch or ten-inch piece should have but very little shake. Wider pieces can have more shake, but it should be local and not scattered over the face of the piece.

5. Slightly stained sap is admissible when other defects are not of a serious nature, the amount of stained sap depending upon width of piece.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x8-16. Has two inches of bright white sap the entire length of piece on one edge. The other edge has two inches of bright white sap for three-quarters its length. The balance of that edge is discolored sap. Other end of piece has one small knot.

Example 2.—Piece 1x8-16. Three-quarters of the entire face shows white sap and a small knot at one end.

Example 3.—Piece 1x10-16. Has one inch of stained sap for one-third the length of the piece. One small knot at each end and one five-eighths knot near center of board.

Example 4.—Piece 1x10-16. Has local shake near one end and one and one-half inches bright sap on both edges with small knot at end.

Example 5.—Piece 1x12-16. Has a small knot at each end, two and a half inches of slightly stained sap for four feet on one edge, and an inch and a half of white sap on the other end of opposite edge. The reverse side has three inches of stained sap on both edges for five feet at one end.

Example 6.—Piece 1x12-12. Shows one and one-half inches white sap on one edge for half length of piece; other edge shows two inches of white sap two-thirds of length. Scattered over the face of this board are six small knots, varying in size from an inch to a small pin knot.

Example 7.—Piece 1x12-16. Both edges of this board have sap varying in width from two to three inches and running full width of the piece, the sap showing slight discoloration. No knot defects or shake are shown.

Example 8.—Piece 1x20-16. Has a rot stain three inches wide and eight inches long at one end, one three-quarter inch unsound knot at other end and two half-inch knots. The reverse side has same appearance, except a narrow streak of white sap and half-inch of stained sap for four feet.

Example 9.—Piece 1x14-16. Has three half-inch black knots, one and one-half inches bright sap for eight feet on one edge and two and one-half inches of bright sap for four feet on other edge. The reverse side has three inches of bright sap on both edges for three feet and three-quarter inches of wane for three feet and shows same knots as on face.

Example 10.—Piece 2x12-16. Has one poor knot three-quarter inches in diameter, but otherwise face is perfect. The reverse side shows stained sap on both edges three inches wide for four feet and one-half inch of wane for eight feet.

Example 11.—Piece 2x14-16. At one end near the edge has one and one-half inch knot; at the other end shake five inches wide for three feet on the same edge as knot. Reverse side shows three inches of slightly stained sap for eight feet.

Example 12.—Piece 1x18-16. At one end shows shell shake for two feet running across one-half of the face. One edge shows three inches of slightly stained sap for eight feet. This piece also has three small knots not over one-half inch in diameter scattered over the face.

Example 13.—Piece 1¼x14-16. Face side shows two inches of slightly colored sap at one end, running out at four feet, but no other imperfections. Reverse side shows sap over two-thirds of the piece, slightly colored in spots for six feet. No knots in this piece.

Example 14.—Piece 1¼x16-16. Face side shows five black knots well scattered from one-half to one inch in diameter. Also three-fourths inch slightly stained sap at one end running out at six feet.

Example 15.—Piece 1x12-16. The face shows two-thirds white sap, no other defects except that one edge shows fifteen inches wane on the back side one inch wide, but not to a feather edge on the face side.

Example 16.—Piece 1x10-16. Shows four inches white sap the entire length on one edge. No other defects except wane on the back for eighteen inches.

In inch lumber and thicker, pieces from four to eight inches wide may be graded under this rule, if so specified.

"C" SELECT.

1. "C" Select must be eight inches and over in width.
2. This grade will admit of quite serious defects if the piece retains at the same time a fair appearance.
3. The defects admissible are the same as those in a "B" Select, but exist to a greater degree.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x8-16. Shows three inches of stained sap for two feet and three small knots. The reverse side has stained sap in four places.

Example 2.—Piece 1x8–16. Has an inch and a half of white sap on each edge full length of piece and eight small knots well scattered.

Example 3.—Piece 1x8-16. Shows three feet of tight shake on one edge at one end and one foot of open shake on the other end; otherwise of good appearance.

Example 4.—Piece 1x10-16. Has white sap on the face side, no knots, but three feet of shake in center of board about three feet from one end. Board has a smooth appearance.

Example 5.—Piece 1x10-16. Has five very small knots well scattered, a streak of stained sap on one edge and an inch of stained sap for two feet on the end of other edge.

Example 6.—Piece 1x10-16. The face is free from defect except two and a half inches of stained sap for eight feet on one edge; otherwise very smooth in appearance. The reverse side shows quite an amount of stained sap.

Example 7.—Piece 1x12-16. Has two inches of stained sap on each edge, two one-inch knots and two one-half inch knots. One-quarter of one side shows sap clear across, slightly stained.

Example 8.—Piece 1x12-16. Has a very smooth appearance, but shows shake clear through for three feet at one end and four small knots.

Example 9.—Piece 1x12-16. Shows considerable white sap on each edge, with eight small knots ranging from a pin knot to one inch in diameter.

Example 10.—Piece 1x12-16. Quite smooth in appearance with shake four inches wide tapering off at one-third length of the piece. At other end of the piece, shake running in "V" shape for 18 inches.

Example 11.—Piece 1x14-16. Has two inches of stained sap for four and one-half feet in center on one edge and a streak of stained sap at both ends of other edges. The reverse side shows one pitch spot 2x3 inches and three inches stained sap, same as in center of the other side. Two or three inches of white sap on each edge of both ends.

Example 12.—Piece 1x14-16. Has one three-fourth-inch poor knot and three one-half-inch black knots; also four feet of tight shake at one end. Reverse side shows same knot and shake defects with three inches of white sap for two feet.

Example 13.—Piece 1x18-16. At first appearance this board seems to be clear, but on closer examination a great deal of close tight shake is found to be scattered over at least one-half of the face. The shake, however, is very fine and probably will not open up.

Example 14.—Piece 1x16-16. Has the appearance of an extra sound "D" Box. The knots are smaller and in general appearance much above the average "D" Box grade. The sap is white and there are ten small knots, three of which are one inch in diameter, and the remainder from one-half inch down to a pin knot.

Example 15.—Piece 1x13-14. Within one foot of end is one and one-fourth-inch sound, black knot; also a one-fourth-inch black knot and scattered over the face are two one-half inch and two pin knots with three inches of bright sap on one edge, running off at nine feet.

Example 16.—Piece 1¼x12-16. Face has slightly colored sap two inches wide on one edge for ten feet; other edge has same amount and kind of sap for two feet, but no other imperfections. Reverse side shows slightly colored sap over the full width for eight feet in length.

Example 17.—Piece 1½x20-16. Face side shows worm holes 16 inches from end in center; one three-fourth-inch black knot three feet from end on one edge; a one-half-inch black knot in center and seven feet from the other end within twelve inches of same end, one red knot three-fourths by one and one-half inches near edge; also three inches of white sap on both edges for twelve feet, with one-half inch wane for eight feet on one edge. Reverse side shows less sap, but same knot defects, except that knots show larger.

Example 18.—Piece 1¼x16-16. Has two feet very fine shake across the face at one end, one and one-half inches of it on edge extending for four feet; another trace of shake on edge near opposite end; also one and one-fourth inches soft rotten knot and one and one-fourth inches of dead sap tapering out at four feet.

Example 19.—Piece 1½x16-16. Has two feet very fine shake across face on one end, one and one-half inches on one side extending for four feet; another trace of shake on edge near opposite end and on same end one three-fourth-inch soft rotten knot, and one and three-fourths inches of dead sap, tapering off at four feet. At center of piece are two three-eighths inch knots. The reverse side shows same rotten knot, and blue sap averaging two and one-half inches in width the whole length of one edge. The other edge has two inches of stained sap for two feet.

Example 20.—Piece 1½x18-16. The face has nine black knots from one-fourth to one-half inches in diameter, well scattered, one of the one-half inch knots being unsound. Also contains one and one-half inches of blue sap full length of one edge, and a small amount of shell shake for two feet from one end. Reverse side shows five of the one-half inch knots that run through from the face, and three inches of dead sap the entire length of one edge.

Example 21.—Piece 1x10-14. The face is covered with white sap for two feet at one end, and extends along one side two inches wide for half the entire length, also one and three-fourths inch, one one-half inch black knots and one pitch pocket, all well scattered.

In inch lumber and thicker, pieces from four to eight inches wide may be graded under this rule, if so specified.

"D" SELECT.

1. "D" Select should be eight inches and over in width.

2. This grade admits any piece of lumber that has the appearance of finishing or a percentage of cutting in which the defects are too numerous or too serious to admit of its being graded into "C" Select.

3. Blue sap covering two-thirds of the face will be admitted. This description embraces one inch, one and one-fourth inch, one and one-half inch, and two inch stock and is graded strictly from the face without regard to the back and cannot be recommended for quality.

See General Instructions.

EXAMPLES.

Example 1.—1x10-16. Face shows a great deal of shake for two-thirds of length, and three spots of rough mill work. This piece is smooth in appearance, but extremely shaky.

Example 2.—Piece 1x14-16. Very smooth in appearance. No knots but fine shake over two-thirds of face, with some blue sap on each edge at one end.

Example 3.—Piece 1x8-16. Shows blue sap three inches wide on each edge for ten feet. No other imperfections.

Example 4.—Piece 1x8-16. Has smooth appearance. Shows partially blue sap over face for six feet. Otherwise good.

Example 5.—Piece 1x10-16. Shows a "B" Select face, but the reverse side shows the dry-rot and worm-hole defects of a No. 4 board.

Example 6.—Piece 1x8-16. Shows blue sap well streaked over eight feet of the face. The balance of good appearance.

In inch lumber and thicker, pieces from four to eight inches wide may be graded under this rule, if so specified.

"D" STOCK AND BOX.

1. This is a grade of smooth-looking and sound-knotted lumber with edges free from wane and the grade practically free from shake.

2. The knots may be either black or red, but should be sound and firmly set, varying in size from an inch and a half down.

3. A "D" Box Board may have any number of knots, depending entirely upon size and location.

4. A twelve-inch "D" Stock board should contain a less number of knots than a "D" Box, and eight and ten inch "D" Stock boards relatively smaller knots and less in number. This grade is nothing more than an extra smooth No. 1 Common.

See General Instructions.

Examples of "D" Stock.

Example 1.—Piece 1x12-14. Has three red knots one inch in diameter, ten knots one-half inch in diameter, and ten small pin knots. There is no sap.

Example 2.—Piece 1x12-14. Has three knots 1½x¾ inches, part red and part black, and six knots 1 inch in diameter, also six small pin knots, red and black mixed.

Example 3.—Piece 1x12-16. Has six knots one-half to one inch in diameter and fourteen knots less than one-half inch in diameter, one and one-half inches of sap on one edge for entire length of piece, partly blue. Other edge has one inch partly blue sap. This board is perfectly smooth and sound in appearance.

Example 4.—Piece 1x12-16. Has twenty-eight knots, of which six are oblong, one-half by one and one-fourth inches, and eight round, red knots one-half to one inch in diameter. The balance are pin knots.

Example 5.—Piece 1x10-16. Has twenty sound, black knots extending over entire face, that will average less than one inch in diameter. Edges are square and piece otherwise sound.

Example 6.—Piece 1x12-16. Has twenty-five sound knots from one-quarter to one-half inch in diameter, five being red and balance black. Four of the one-half inch red knots at one end are in a cluster. The board is otherwise sound and of good appearance.

Example 7.—Piece 1x12-16. Contains twenty-five red and black knots scattered over the face, five being one-half inch in diameter and the others smaller; also has two inches of bright sap full length of one edge and one-half inch bright sap full length of other edge. The board is otherwise perfect.

Example 8.—Piece 1x8-16. At one end in a space of three feet there are three black knots, one-half inch in diameter and one black knot three-quarters of an inch in diameter. The center contains two pin knots; at the other end within a space of five feet there are eight sound red knots, two being one inch in diameter, two are one-half inch in diameter, and four are pin knots. At a glance this would be considered a fair type of "D" Stock.

Example 9.—Piece 1x8-16. There are twenty sound black knots in this piece, none of them exceeding one-half inch in diameter, and all within a space of twelve feet. This is a high grade of "D" Stock.

Examples of "D" Box.

Example 1.—Piece 1x18-16. Well scattered over this piece are fifteen round black knots from one-eighth inch to one inch in diameter and at one edge three feet from end a cluster of three-quarter inch sound red knots. An inch of white sap shows along two-thirds of one edge and nearly as much along the other edge.

Example 2.—Piece 1x14-16. Has seventeen black knots ranging in size from one inch in diameter down to a pin knot; no other defects. This is considered a high type of "D" Box.

Example 3.—Piece 1x14-12. One end has a sound red knot, one by two inches in diameter and a three-quarter inch red knot within six inches of it. The balance of the face contains eleven small knots well scattered. The piece is otherwise perfect.

Example 4.—Piece 1x14-16. Contains eighteen sound knots, three of which are one by one-half inches; five are three-quarters inch and ten are pin knots, all well located.

Example 5.—Piece 1x16-14. There are twenty-one sound knots in this piece, eight being black, two of which are one and one-half inches in diameter.

Example 6.—Piece 1x16-14. There are twenty-one sound knots in this piece, eight being black, two of which are one and one-half inches in diameter, and the balance three quarter inches and less. There is also one and one-half inches of bright sap the entire length of one edge.

Example 7.—Piece 1x13-16. Has thirteen black and two red knots, all about one-half inch in diameter, well scattered over the face and two inches of bright sap for six feet on one edge.

C AND BETTER NORWAY.

1. C and Better Norway shall be four inches wide and wider and of the same thickness as white pine.

2. White sap is no defect, and one-fifth the surface of the face may be covered with sound, stained sap, if not in combination with other defects.

3. This grade should be practically free from shake, rot, and splits.

4. The knotty and wane defects in the low line pieces of this grade should be the same as in the grades of white pine B Strips and B Selects.

5. All knots to be sound and firmly set. The product of the log, better than described above, is included in this grade.

SIDING.

GENERAL INSTRUCTIONS.

1. Beveled Siding should be graded from the face side only.
2. Defects on the thin edge which will cover when laid should not be given the same consideration as defects elsewhere.

"A" AND CLEAR SIDING.

"A" and Clear Siding will admit of bright sap on thin edge which will cover when laid, or a half inch of bright sap on thick edge for one to two feet, or in the absence of sap one or two pin knots.

EXAMPLES.

Example 1.—Piece ⅜x6-16. Shows one-half inch bright sap on thin edge for two-thirds of the length. Otherwise perfect.

Example 2.—Piece ⅜x6-16. Shows three-fourths inch of bright sap on thin edge for ten feet. One knot one-fourth inch in diameter, three feet from end, and at six inches from other end a slight trace of pitch.

Example 3.—Piece ⅜x6-14. For seven feet on thin edge there is one-half inch of sap that is slightly discolored; at the center of the piece is one one-fourth inch black pin knot.

Example 4.—Piece ⅜x6-14. On the thin edge there is one-half inch black knot. Otherwise the piece is perfect.

Example 5.—Piece ⅜x6-16. Contains two one-fourth inch black knots, one being three feet from end and the other near the center of the piece. No other defects.

Example 6.—Piece ⅜x6-16. This piece is without a defect.

Example 7.—Piece ⅜x6-16. Shows no defect except one-quarter inch of white sap on thick edge three feet in length.

Example 8.—Piece ⅜x6-16. Shows one pin knot on thick edge less than one-half inch in diameter.

"B" SIDING.

"B" Siding will admit of any amount of white sap, or two or three sound knots not to exceed one-half inch in diameter, well scattered over the face of piece.

EXAMPLES.

Example 1.—Piece ⅜x6-16. Shows a heavy pitch spot one inch long on thin edge, a torn defect on same edge that covers when laid, a pitch pocket one-fourth inch wide by one and one-fourth inches long, two inches from thick edge at the center of the piece, and for six feet on thick edge shows an inch of white sap.

Example 2.—Piece ⅜x6-16. Has four very small, smooth knots, one-fourth inch or less in diameter within four feet of end near thin edge and a one-half inch round, red knot within two inches of thick edge and six feet from same end.

Example 3.—Piece ⅜x6-16. Has one-half inch white sap the whole length of thick edge and a large curl four feet from one end with one-half inch sound knot.

Example 4.—Piece ⅜x6-16. Has a black knot on the thin edge that will cover, a one-half inch black knot one inch from thick edge, and two pin knots that show.

Example 5.—Piece ⅜x6-16. Shows three-fourths inches of white sap on thick edge and six feet from end; a one-fourth inch black knot at center of piece and at four feet from other end and on thick edge a one-fourth inch black knot.

Example 6.—Piece ⅜x6-16. Has a three-fourths inch black knot five feet from one end and the piece is not smoothly dressed, otherwise perfect.

Example 7.—Piece ⅜x6-16. Has a one-half by three-fourths inch knot on the thick edge, three feet from end and one-half inch white sap, for two-thirds of length on thick edge.

Example 8.—Piece ⅜x6-16. Has two one-half inch black knots within two and one-half feet of one end. Another one-half inch knot five feet from same end, all of which shows when laid.

Example 9.—Piece ⅜x6-16. Has bright sap on thick edge, commencing at one end, one and one-fourth inches deep and running out at twelve feet. With the exception of two curls has no other defects.

Example 10.—Piece ⅜x6-16. Has an inch of sap on thick edge for ten feet. For one foot at end this sap is blue. Within three feet of other end is a three-eighths inch black knot.

Example 11.—Piece ⅜x6-16. Has white sap covering the entire face. No other defects.

"C" SIDING.

1. "C" Siding will admit of any amount of bright sap.

2. When sap defect is not too pronounced, two or three small knots, not exceeding one inch in diameter, or more knots when smaller, or slight shake are admissible.

3. A small amount of slightly blue sap on the thick edge is admissible, or more blue sap on the thin edge.

4. Defects requiring one cut not to exceed four inches of waste, are allowed in high line pieces twelve feet long and longer.

EXAMPLES.

Example 1.—Piece ⅜x6-16. Has a three-fourth inch black knot five feet from one end. A small pitch pocket and a little very tight shake within twelve inches of same end of piece.

Example 2.—Piece ⅜x6-16. Has a half inch black knot on thick edge, five feet from end, and at seven feet another same sized knot. Within five feet of the other end is a one-half inch loose knot and one-quarter inch of blue sap for six feet on thick edge.

Example 3.—Piece ⅜x6-16. Contains white sap one-half the width of the whole length and is slightly damaged in two spots by bad mill work.

Example 4.—Piece ⅜x6-16. Has a one-half inch black knot three feet from the end that partly covers when laid. A pitch streak two inches long four feet from the same end, a three-fourths inch black knot five feet from end and three-quarters of an inch of white sap for three feet on thick edge at the same end. One-half inch of white sap shows for two feet on thick edge of other end with two feet of shake that will cover when laid.

Example 5.—Piece ⅜x6-16. Has five pin knots well scattered over face of piece. On thick edge is one-quarter inch of stained sap for three feet. On thin edge is a little shake that nearly covers.

Example 6.—Piece ⅜x6-16. Has three knot holes on thin edge that will cover when laid and four black knots one-quarter inch to one-half inch in diameter, well scattered.

Example 7.—Piece ⅜x6-16. Has one and one-half inches of sap on thick edge for two-thirds of the length. Within five feet of the end, one foot of the sap is discolored and for two feet it is blue for three-quarters of an inch in width. A three-quarter inch knot on the thin edge. This piece has a very smooth appearance.

Example 8.—Piece ⅜x6-16. Has a one and one-half inch black, loose knot six feet from end, but otherwise is nearly perfect. This is considered a cutting strip.

Example 9.—Piece ⅜x6-16. Has one-quarter inch of wane for four feet on thin edge. Two-thirds of the face is covered with bright sap, except a slight discoloration from a crossing in piling.

Example 10.—Piece ⅜x6-16. Is perfect with the exception of three-fourths inch of blue sap running three-fourths the length of the piece on thick edge.

"D" SIDING.

"D" Siding will admit of considerable shake and stained sap. With or without either of these defects a piece may have a number of small knots well scattered over the face.

EXAMPLES.

Example 1.—Piece ⅜x6-16. Shows three inches blue sap on thick edge for three feet and a few small pin knots.

Example 2.—Piece ⅜x6-16. Has three black knots one inch in diameter, and slight touch of shake.

Example 3.—Piece ⅜x6-16. Looks to be clear, but contains considerable close shake.

Example 4.—Piece ⅜x6-16. Has twelve small red and black knots well scattered, in size from one-quarter to one-half inch.

Example 5.—Piece ⅜x6-16. Considerable blue and white sap; one-half of piece shows white sap and the other is stained, but not very blue.

Example 6.—Piece ⅜x6-16. The face of this piece is covered with blue sap for about seven feet; the remainder is perfect.

Example 7.—Piece ⅜x6-16. Slightly blue sap covers the entire face; otherwise perfect.

"E" SIDING.

1. This is the lowest recognized grade of Beveled Siding and will admit of the sap, knot and shake defects not admissible in "D" Siding.

2. Many pieces showing seriously defective mill work are found in this grade.

FLOORING.

"A" FLOORING.

1. "A" Flooring is a one-faced strip and should lay with a practically clear face.
2. A half-inch of bright sap or one or two small pin knots are admissible in this grade.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x6-16. Has no defect.

Example 2.—Piece 1x6-14. Has two small black pin knots; no other defects.

Example 3.—Piece 1x6-12. Has a strip of perfectly bright sap on one edge three feet in length, varying in width from one-quarter to one-half inch; no other defect.

"B" FLOORING.

"B" Flooring will admit of any amount of white sap, or two to three knots from a quarter to half an inch in diameter.

EXAMPLES.

Example 1.—Piece 1x6-16. Free from all defects except a rough spot caused by dressing.

Example 2.—Piece 1x6-16. Has bright sap on edge one-half inch wide for half length of piece and a small pin knot less than one-half an inch.

Example 3.—Piece 1x6-14. Has at one end one and one-half inch white sap, tapering off and disappearing at three feet from end. No other defect.

Example 4.—Piece 1x6-16. Has two small knots six feet apart, black but sound, one a full half inch in diameter and the other smaller.

Example 5.—Price 1x6-12. The entire face is white sap. No defects.

"C" FLOORING.

"C" Flooring will admit of bright sap face or two knots one inch in diameter, or three to five knots one-half inch or less in diameter, but not a combination of these defects unless of a decidedly less amount, and must be practically free from shake.

EXAMPLES.

Example 1.—Piece 1x6-14. Has a one-inch firm, sound, black knot, near the center of the piece. One three-eighths inch black, sound knot six feet from end and one and one-fourth inch knot four feet from same end; also eighteen inches of bright sap.

Example 2.—Piece 1x6-16. At eight inches from end has one three-eighth inch knot; at three feet has one-fourth inch knot and at center two three-eighth inch knots, all being sound and black. At the other end one and one-half inches bright sap for ten feet.

Example 3.—Piece 1x6-14. Contains three small pin knots well scattered and a small pitch pocket three-eighths inch long near end. At other end is eighteen inches of light shake; smooth appearance.

Example 4.—Piece 1x6-16. Has five small black knots, the largest being one-fourth inch in diameter. Otherwise the piece is perfect.

Example 5.—Piece 1x6-14. Has eight small, black knots the size of a lead pencil and one-half inch of bright sap for five feet at the end.

Example 6.—Piece 1x6-16. Has three inches of bright sap on one edge for full length of piece, except that the sap near one end is slightly stained, but the piece as a whole is very smooth in appearance.

"D" FLOORING.

1. "D" Flooring is a grade between No. 1 Fencing D & M and "C" Flooring, and will admit in a general way the imperfections of both grades.
2. In a knotty type the knots must be smaller and fewer in number than in No. 1 Fencing, and may be either red or black.
3. Some stained sap is allowed and tight local shake.
4. Defects requiring one cut, not to exceed four inches of waste, are allowed in high line pieces 12 feet long and longer.

EXAMPLES.

Example 1.—Piece 1x6-12. Has blue sap over the entire face for one-third of its length, but no other defects. This is considered the limit of blue sap admissible.

Example 2.—Piece 1x6-16. Has blue sap across the face for three feet in center of the piece, and two one-half inch red sound knots two feet from each end.

Example 3.—Piece 1x6-16. Has fifteen sound, black knots ranging from a half inch down to pin knots and well scattered; also three-fourth inch white sap on one edge for two-thirds of the length.

Example 4.—Piece 1x6-16. Has one-half face bright sap with four one-half inch black knots and six pin knots well scattered.

Example 5.—Piece 1x6-16. Has one black knot three-fourths by one and three-fourths inches, five feet from one end and two one-half inch knots near other end, with slight pitch streak in center of piece for two feet.

Example 6.—Piece 1x6-14. Has ten sound, black knots the largest two being three-fourths inch in diameter and bright sap covering nearly entire face.

Example 7.—Piece 1x6-14. Has one black knot, one by one and three-fourths inches in center of piece and a one inch knot two inches from end; also a rough spot near large knot in center.

Example 8.—Piece 1x6-12. At five feet from one end has one rotten knot, one and one-half inches in diameter. Otherwise the piece is perfect.

Example 9.—Piece 1x6-14. Has stained sap on each edge of piece full length, the sap varying in width from one to one and one-half inches. No other defects.

Example 10.—Piece 1x6-16. Has ten small knots, all red, well scattered, averaging one-half inch in diameter. If the knots had been somewhat larger this piece would have graded No. 1.

FARMER'S CLEAR FLOORING.

1. Farmer's Clear Flooring is of a practically clear appearance.
2. The knotty defects shall not exceed that of a "C" Flooring.
3. The leading defect is shake, which may be scattered over the face of the strip.

EXAMPLES.

Example 1.—Piece 1x6-16. Shows the knotty defects of a "C" flooring and has tight shake scattered over two-thirds of its face. Good appearance.

Example 2.—Piece 1x6-16. Shows two inches of blue sap for six feet on one edge with considerable fine shake over the face. No other defects.

Example 3.—Piece 1x6-16. At first appearance this piece seems to be free from all defects. On closer inspection it is found to be very shaky but the shake is close and tight.

Example 4.—Piece 1x6-16. Has no other defects than slightly stained sap covering the entire face.

NO. 1 FENCING, D & M.

This should be simply sound No. 1 Fencing worked to flooring, and of the character, when worked, described under the title of No. 1 Common Strips.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x6-16. Has twenty-two sound, red knots, one being a horn knot three-fourths by four inches long; two knots in middle side by side are three-fourths of an inch in diameter and the balance of knots are one-half inch and less in size.

Example 2.—Piece 1x6-16. Has four sound, red knots, the two largest being three-fourths inch by one and one-half inches, and is perfectly sound in every particular.

Example 3.—Piece 1x6-16. There are seven round, black knots and two red knots in this piece, the red knots being located near one end and three-fourths inch in diameter. The largest black knot is one and one-fourth inches in diameter and four feet from same end. The balance of knots are one-half inch and less, and well scattered. It also has a little shell shake at opposite end from large knot and is considered a liner between No. 1 and No. 2 Fencing on account of having a combination of defects mentioned.

Example 4.—Piece 1x6-16. Has eighteen sound knots about one-half being black, and ranging in size from one-half inch to one inch in diameter. It is perfectly sound and is considered a good No. 1 strip.

Example 5.—Piece 1x6-16. Has thirteen sound, red knots averaging three-fourth inch in diameter, and two sound, red knots one inch in diameter. At the center a little bright sap is shown and also one foot of wane on tongue.

Example 6.—Piece 1x6-16. This is a sound heart piece containing seven red knots. One is a pitch knot well set and the balance are of small horn type.

Example 7.—Piece 1x6-14. Has five perfectly sound, red knots one and one-half inches in diameter, and seventeen small, red knots one-fourth to three-fourths inch in diameter. This is a typical piece of No. 1 Fencing.

Example 8.—Piece 1x6-14. Has six sound, red horn knots running from each edge and nearly meeting. These knots do not impair the strength of the piece.

Example 9.—Piece 1x6-16. Has a small cluster of black knots at center, two one-half by one inch black knots near one end and nine other small black knots well scattered.

Example 10.—Piece 1x6-16. This is a Norway strip full of pitch and flat grained, free from other defects and but for grain would go into "C" and better.

Example 11.—Piece 1x6-16. Has twenty-one small, sound knots, the two largest being about one inch in diameter. On the back and at the center of the piece slight wane shows on both edges for thirteen inches, but not enough to impair the tongue or groove.

Example 12.—Piece 1x6-16. Has one, one-half inch knot, three feet from one end; one, three-eighths inch knot four feet from other end; one, five-eighths inch knot near center. All knots sound and firmly set. The whole face of the piece is slightly stained with blue sap. No other defects.

NO. 2 FENCING, D & M.

This should be simply No. 2 Fencing worked to flooring, and of the character, when worked, described under the title of No. 2 Common Strips.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x6-14. Has eight black knots, three are one-half inches in diameter within three feet of one end and one of them is an edge knot, the other five knots are one and one-half inches in diameter, scattered over the face of the piece. At the opposite end from the large knots is a one-half inch hole where a knot has sloughed off in working.

Example 2.—Piece 1x6-14. Has seven small, black knots that would readily be admitted as a No. 1 strip if one of the edge knots had not come out in working.

Example 3.—Piece 1x6-12. Has white sap full length of piece on one edge. One end has a streak of pitch averaging three-fourths inch for five feet, at opposite end, an open pitch streak for two feet, and three one-inch knots.

Example 4.—Piece 1x6-14. Has four black knots from one to one and three-fourths inches in diameter, two pitch knots one and one-half inches wide by four inches long, and seven knots one and one-half inches and smaller. All are well scattered over the face.

Example 5.—Piece 1x6-16. At one end has one and one-half inch sound, red knot and one one-half inch red knot. The center has two one inch, sound red knots and part of a one and one-half inch loose knot on grooved edge. Scattered over the face within six feet of other end are ten sound pin knots and three two inch, sound, red knots.

Example 6.—Piece 1x6-16. Has twenty-two black knots scattered over face, three being loose and on one edge a little light shake. None of these knots will exceed one inch in diameter.

Example 7.—Piece 1x6-16. This is a smooth looking strip, its principal defect being a light shell shake extending over two-thirds of the face; also five small knots well scattered and a half inch, edge knot hole.

Example 8.—Piece 1x6-16. This is a sound small knotted piece and would be No. 1 if it were not that a knot one inch by one-half inch is gone out of the edge.

Example 9.—Piece 1x6-16. Is coarse in appearance on account of two large limb knots extending across the face. Knots are red.

Example 10.—Piece 1x6-16. Contains nine knots from one-half inch to one inch in diameter, part of them black and one edge knot partly broken out in dressing. On one edge is a slight trace of rot, but the piece is of a very sound character.

Example 11.—Piece 1x6-16. Has sound, red knots of all sizes up to two inches and has one inch of black sap for six inches on one edge. This is considered a fine type of No. 2.

Example 12.—Piece 1x6-16. At first appearance looks like a "D" Flooring strip, the apparent defect being a half dozen small knots averaging less than an inch. On close inspection considerable shake is found, rather more than is admissible in No. 1.

Example 13.—Piece 1x6-16. Has too much blue stain to be admitted into either the grade of "D" or Shaky Clear Flooring, the entire face being covered, but on account of its otherwise good appearance is graded No. 2.

NO. 3 FENCING, D & M.

No. 3 Fencing D & M is the regular grade of No. 3 Fencing worked to flooring and may contain coarse knots, an occasional knot hole, splits, wane, worm holes, streaks of red rot, and a great deal of shake, but not a serious combination of these defects.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x6-14. Has black knots five-eighths to one inch in diameter, three feet from end, knot sloughed off edge one-half to five-eighths inches. Five inches from same end and on same edge knot five-eighths by one and one-fourth inches sloughed off.

Example 2.—Piece 1x6-16. If free from shake this piece would make a good No. 1 Fencing Flooring, but has open shake clear across the face for one-half length of piece.

Example 3.—Piece 1x6-16. Has ten branch knots across its face, average size one and one-fourth by two and seven-eighths inches, at intervals of say eighteen inches, running the full length of piece; and also has sound red rot two inches wide in center of board running two feet, at one end of piece.

Example 4.—Piece 1x6-14. Has eight small rotten knots with sound rot stains extending from one knot to the other along the whole length of the piece. This piece has a decidedly unsound appearance at the first glance.

Example 5.—Piece 1x6-16. Has four good sized branch knots on face, with some heart shake along the grooved edge; also three-fourths inch wane for two feet at one end of face. The back is also waney on both edges, so much so for half the length that the piece is almost slabby.

COMMON LUMBER.

Common lumber may consist of white or Norway pine, or a mixture of both.

The characteristics of Common lumber, as distinguished from Finishing, consist of a general coarseness of appearance, caused by various defects and combinations of defects, in a greater or less degree according to the grade.

NO. 1 COMMON BOARDS AND STRIPS.

1. No. 1 Common Boards and Strips includes all sound, tight-knotted stock, whether red or black knots, free from very large, coarse knots or any imperfections that will weaken the piece.
2. This grade should be of a character fitting it for ordinary use except finishing purposes.
3. Knots, medium colored blue sap or a small amount of shake are admissible if they do not affect the general utility of the piece.
4. Norway boards and strips, except clear and select, should not be put higher than No. 1 Common. The class of Norway admissible in this grade can contain either black or red knots, provided they are small and firmly set, or medium colored blue sap covering the entire face of the piece if not in combination with other marked defects.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x12-16. Has four red knots from one and one-half to two inches in diameter and one black knot one and one-half by three inches; also fourteen small knots, all sound and well scattered, these smaller knots varying in size from one-half to one and one-fourth inches.

Example 2.—Piece 1x12-16. There are a great many knots in this piece, but they are well distributed and are sound. Six of them are red, from one and one-half to two inches in diameter. Seven more red knots, about one and one-half inches, and four small black knots, not over an inch in diameter.

Example 3.—Piece 1x12-14. Has the knot defects and general appearance of a "D" stock. It contains a dozen small, sound, black knots and quite a little close shake at one end and an inch of blue sap on one edge for nearly the full length of the piece. Without the shake it would pass easily for a "D" stock.

Example 4.—Piece 1x8-16. Very smooth-looking piece, but has six black knots, all sound, from one-half to one and one-half inches in diameter, and a slight touch of blue sap on edge.

Example 5.—Piece 1x8-16. Worked to drop siding. Has four red knots about one and one-fourth inches in diameter and eleven small, sound, red knots, in size from one-half to one inch in diameter.

Example 6.—Piece 1x8-16. Worked to ship lap. Has a great deal of sap, a portion of which is slightly stained, and in addition seven red knots about an inch in diameter and fifteen smaller ones ranging from one-fourth to one inch in diameter. This has a smooth appearance for No. 1.

Example 7.—Piece 1x10-14. S 2 S. This is a Norway board, smooth in appearance, with medium blue sap stain over entire face. Has six sound, firmly set knots from one-fourth of an inch to one inch in diameter well scattered over face. No other defects.

NO. 2 COMMON BOARDS AND STRIPS.

1. No. 2 Boards and Strips are subject to the same general inspection as No. 1, except that coarser and larger knots, not necessarily sound, more stained sap and shake are allowed. "V" and coarse limb knots, heart shake or slight trace of rot, when firm, or occasional worm holes, are defects admissible in this grade.

2. Norway, with stained sap covering the entire face of the piece, is admissible when not in combination with other marked defects.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x12-16. Has seven black knots from one and one-half to two inches in diameter and eight smaller knots, part of which are red and the others black; also shake at one end.

Example 2.—Piece 1x12-16. Very smooth in appearance. Looks like a "D" stock; contains a number of small knots, and a great deal of close shake over the face of one-half of the board.

Example 3.—Piece 1x12-16. Has six large branches or "V"-shaped knots, all red, from one and one-fourth to one and one-half inches wide, and from three to four inches long; also a half dozen smaller red knots from one to two inches in diameter.

Example 4.—Piece 1x16-16. Has four large branch knots, all black, a little heart shake or season check, a touch of red stain two inches wide at narrowest place, widening to five inches, in all about four feet in length; also eight or ten small knots, well scattered.

Example 5.—Piece 1x10-14. Has nine knots, both red and black, from one and one-half to two inches in diameter; at least a dozen smaller knots from one-half to one and one-fourth inches, both red and black, all well scattered and firmly set.

Example 6.—Piece 1x12-14. Contains ten red knots from two to three inches in diameter and a half dozen smaller ones, all sound; also a single grub or wormhole.

Example 7.—Piece 1x6-16. Has a great deal of blue sap, with a dozen small knots, both red and black, well scattered and sound.

Example 8.—Piece 1x6-16. Has two red knots two inches in size, four knots averaging an inch, and a half dozen small ones. Type of a good No. 2.

Example 9.—Piece 1x6-16. Has a streak of very firm red rot from one-half to one inch wide running six feet in length from one end; also a half dozen small knots, well scattered. The rot is barely perceptible in the rough strip and it has therefore a smoother appearance than the average No. 2 Fencing strip.

Example 10.—Piece 1x6-16. Has three large wormholes and considerable shake, both well scattered. In appearance very smooth, and an acceptable grade, whether used rough or D & M.

Example 11.—Piece 1x12-14. The face contains a large number of sound knots, and would be No. 1 were it not that it also has six white worm or grub holes, well scattered. If it were ten inches wide not more than three or four wormholes would be admitted.

NO. 3 COMMON BOARDS AND STRIPS.

1. The general appearance of this grade of lumber is coarse, admitting:—
2. Large, loose, or unsound knots.
3. An occasional knot hole.
4. A great deal of shake.
5. Some red rot.
6. Large worm holes.
7. Any amount of blue sap.
8. Not a serious combination of these defects in any one piece is admissible.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x18-16. Badly split at one end for six feet and sprinkled with a dozen knots.

Example 2.—Piece 1x16-14. Very shaky all over, so much so that shake can be plainly seen. No other defects.

Example 3.—Piece 1x14-14. Has twelve large knots from two to three inches in diameter, some of them soft and unsound. Also a half dozen small knots and a split two feet in length at one end.

Example 4.—Piece 1x12-16. Has six large branch knots, very coarse in appearance and which materially weaken the board. Otherwise sound.

Example 5.—Piece 1x10-14. Worked to ship lap. Has four black knots about one and one-half inches in size and one knot hole of same size.

Example 6.—Piece 1x10-14. Has eight small knots one inch in diameter. The knots are soft and rotten. If knots were sound, the board would pass for a "D" stock.

Example 7.—Piece 1x10-14. Worked to ship lap. Has four sound knots one and a half inches in diameter, and one unsightly, coarse, black knot, two inches wide and six inches long.

Example 8.—Piece 1x10-16. Worked to ship lap. One end smooth and free from all defects except a few pin knots. The other end shows three feet containing red rot four to six inches in width.

Example 9.—Piece 1x8-16. Worked to flooring. Shows a dozen small, black knots, and red rot, of a firm texture, over one-third of its face.

Example 10.—Piece 1x10-16. Worked to ship lap. Has knot defects as are found in No. 1 Common, but also has a dozen large wormholes, well scattered, which make it a No. 3.

Example 11.—Piece 1x10-14. Worked to ship lap. Has four large, black knots, three inches in diameter, one of them rotten; also a few pin knots and a little blue sap.

Example 12.—Piece 1x10-16. Full of coarse knots, all sound, but so extremely coarse in appearance that the board is classed as No. 3. Without two or three of the coarse knots it would be a satisfactory No. 2.

Example 13.—1x8-12. Worked to ship lap. Shaky all over, but smooth in appearance.

Example 14.—Piece 1x6-16. Has one inch of wane on one edge and considerable blue sap. Also one small knot hole an inch in diameter, and one large coarse knot.

Example 15.—Piece 1x6-16. Has streak of firm rot four feet long, from one to three inches wide; also some shake at other end.

Example 16.—Piece 1x6-16. Has three coarse black knots from two to three inches in diameter.

Example 17.—Piece 1x10-14. Has one large sound knot two and one-half inches in diameter at one end of piece. Two feet from same end has rotten knot three-fourths inch in diameter, and five feet from same end has dead sap two and one-fourth inches wide on each edge for four feet; also two good-sized wormholes, one knot hole, three-fourths by one inch; and six feet from end one sound, red knot, one and one-half inches in diameter.

Example 18.—Piece 1x12-16. A nice, smooth looking board with the exception of a rotten-limb knot one-half by two inches six feet from end and fourteen wormholes well scattered from end to end. Outside of above defects this piece would be a good No. 1 twelve-inch stock board.

Example 19.—Piece 1x16-14. Four feet from end of this piece is a bunch of five large, sound knots, in size from one and one-half to three inches in diameter; and running along piece are six other sound knots ranging in size from one-half to one and one-fourth inches in diameter. Within four feet of the other end of piece there is a knot hole one and one-half inches in diameter, and an open gum seam about sixteen inches long.

Example 20.—Piece 1x8-14. Has several small black knots one-fourth to five-eighths inch in diameter; and three sound red knots from one and one-half to two inches in diameter. It also has two knot holes on same edge of board, one of them one and one-fourth by one and one-half inches in size and six feet from end of piece; the other, three-fourths by two inches and situated three feet from same end.

NO. 4 BOARDS AND STRIPS.

1. The predominating defect characterizing this grade is red rot.

2. Other types are pieces showing numerous large wormholes, or several knot holes, of pieces that are extremely coarse knotted, waney, shaky, or badly split.

2. Norway, when extremely cross checked, is admissible in this grade.

See General Instructions.

EXAMPLES.

Example 1.—Piece 1x18-16. One-half of this board has the general appearance of a No. 2 Common. The other half is composed of red rot, varying from firm to soft.

Example 2.—Piece 1x12-16. Alternate streaks of white wood and red rot, fully one-half of the face being red.

Example 3.—Piece 1x12-16. Contains a dozen large worm holes, considerable rot, and a few coarse knots.

Example 4.—Piece 1x12-14. Contains four large knot holes with other knot defects.

Example 5.—Piece 1x12-16. Has the knot defect of a No. 2 board, but contains also twenty-five or thirty large wormholes. No rot or knot holes.

Example 6.—Piece 1x12-12. Very badly split in two or three places. No rot or knot defects to speak of, but board is badly shattered.

Example 7.—Piece 1x10-16. Three-fourths of the face of this board shows red rot, but very little soft rot.

Example 8.—Piece 1x4-16. Shows a good face, but it is excessively waney on back, there being four feet of it showing all slab. Face equal to No. 2 in quality.

NO. 5 BOARDS.

No. 5 Boards is the lowest recognized grade and admits of all defects known in lumber, provided the piece is strong enough to hold together when carefully handled.

JOISTS, SCANTLING, AND TIMBER.

NO. 1.

1. No. 1 joists and scantling must be of a good, sound character, but will admit of defects that do not impair the strength of the piece.
2. On basis of 2x4, wane on edge is admissible, one-half inch deep, for half the length, or a proportionate amount for a shorter distance or on both edges. In any case, one side and two edges should allow a good nailing surface. It being understood, however, that the wane shall in no case extend over one-half the side of the piece.
3. A few wormholes admissible.
4. Stained sap is not considered a defect.
5. Timbers and three-inch plank admit proportionately greater defects.
6. 2-inch dimension of this grade may contain 20 per cent of No. 1 tamarack, and 3-inch and thicker and timbers may contain any amount of No. 1 tamarack.

NO. 2.

1. No. 2 will admit of large, coarse knots, not necessarily sound, considerable wane; also shake, wormholes, red, dozy streaks, crooked pieces or other defects which weaken or impair the piece to such an extent as to render it unfit for No. 1 grade.
2. Any amount of No. 2 tamarack is admissible in this grade.

NO. 3.

No. 3 will admit a great deal of rot and all the imperfections allowed in No. 1 and No. 2, but in a much more pronounced form, and any amount of No. 3 tamarack.

THICK COMMON LUMBER.

GENERAL RULE.

Common lumber, one and one-fourth inches and thicker, shall be graded the same as inch lumber.

TANK STOCK.

Tank Stock shall be of dimension sizes, square edged, practically free from wane and shake, and having any quantity of sound, water-tight knots.

White sap is no defect.

SELECT COMMON.

1. **Select Common** shall be of dimension sizes, of white pine, and of a smooth, common appearance on the face side.
2. White sap shall not be considered a defect in this grade.
3. A slight amount of stain is admissible on the face, and any amount of sound, stained sap on the back.
4. A small amount of shake may show on the face when not in combination with other marked defects.
5. Any quantity of small, sound knots, red or black, that do not give too coarse an appearance to the piece, are admissible.
6. The face of piece should be practically free from wane, while the back may show a moderate amount, as well as other defects.

STEP PLANK.

Step Plank shall be white pine, 8 inches or wider, and shall be graded the same as No. 1 Common Boards.

FLAT COMMON.

Flat Common shall be white pine, 6 inches or wider, and shall be graded the same as No. 2 Common Boards and Strips.

NO. 1 BOX.

No. 1 Box shall be graded the same as No. 3 Common Boards and Strips.

NO. 2 BOX.

No. 2 Box shall be graded the same as No. 4 Common Boards and Strips.

FACTORY LUMBER.

FACTORY PLANK.

1. Grades as described under this head are valued for cutting up qualities only, and should not be confounded, either in quality or value, with grades outlined in another part of this book for yard purposes.
2. Factory plank of all kinds, better than No. 3 Shop, shall be graded for the percentage of Door cuttings that can be obtained.
3. Two grades of Door cuttings only shall be recognized, and are to be known as No. 1 and No. 2 cuttings.
4. The only defect admissible in No 1 Cuttings is white sap.
5. The grade of No. 1 Door cuttings must be free from all other defects.
6. The grade of No. 2 Door cuttings will admit of one defect only in any one piece. This may be a small knot of sound character, not to exceed five-eighths of an inch in diameter, or the defect may be slightly stained sap which does not extend over more than one-half the face of the piece on one side.

SHOP COMMON.

No. 1 Shop Common.—The sizes and grades of cuttings admissible in the grade of No. 1 Shop Common are as follows:

1. No. 1 Stiles in width 5½ or 6 inches, and in length from 6 feet 8 inches to 7 feet 6 inches.
2. No. 1 Rails, 9 or 10 inches wide and from 2 feet 4 inches to 3 feet in length.
3. No. 1 Muntins 5½ inches wide and from 3 feet 6 inches to 4 feet in length.
4. Any number of pieces of either the Stiles or Rails mentioned above are admissible in the grade of No. 1 Shop Common; but only two Muntins of the sizes mentioned above shall

be considered, and one No. 2 door Stile may also be considered, in securing the required percentage of cuttings in any given plank.

5. Each plank of No. 1 Shop Common shall contain not less than 50 per cent nor more than 70 per cent of Door cuttings of the sizes and grades above mentioned.

No. 2 Shop Common.—The sizes admissible in No. 2 Shop Common are as follows:

1. Stiles in width 5¼ inches or 6 inches and from 6 feet 8 inches to 7 feet 6 inches in length.
2. Rails 9 or 10 inches in width and from 2 feet 4 inches to 3 feet in length.
3. Top Rails 5¼ inches wide and from 2 feet 4 inches to 3 feet in length. Top Rails must, however, be of No. 1 Door cutting quality.
4. Muntins 5¼ inches wide and from 3 feet 6 inches to 4 feet in length.
5. Any number of cuttings of any one of the above sizes are admissible in the grade of No. 2 Shop Common.
6. Each plank of No 2 Shop Common shall contain either one of the following: At least 25 per cent. of No. 1 Door cuttings, or not less than 40 per cent. of all No. 2 Door cuttings, or not less than 33⅓ per cent. of No. 1 and No. 2 Door cuttings combined.

No. 3 Shop Common one and one-fourth inches and thicker, will admit all below the grade described as No. 2 Shop Common that is of a cutting type, and suitable for sash, door, or other cuttings, and may contain not to exceed 25 per cent. of Step Plank and Flat Common.

FACTORY SELECTS.

Factory C Select.—The grade of Factory C Select shall contain from 70 to 80 per cent of No. 1 Door cuttings in the sizes specified as admissible in No. 1 Shop.

Factory B Select.—The grade of Factory B Select shall contain from 80 to 90 per cent of No. 1 Door cuttings in the sizes specified as admissible in No. 1 Shop.

Factory A Select and Better.—The grade of Factory A Select and Better shall consist of all Plank cutting more than 90 per cent. of No. 1 Door cuttings of the sizes specified as admissible in No. 1 Shop Common.

NOTE.—All factory plank shall be graded from the poor side, and, in determining the percentages of door cutting, consideration must be given to the fact that plank are to be ripped full length in such manner as will yield the highest grade and largest percentage of door cuttings before cross cutting, except in such cases where plank will yield a higher value by being first cross cut for rails. In such instances as when stock is cross cut for rails, where some of the stock so obtained is too poor for either No. 1 or No. 2 rails, and which yet contains stiles or muntins, or top rails, which can be obtained by ripping this cross-cut stock, the door cuttings so obtained shall be figured in, when determining percentages.

INCH SHOP COMMON.

1. There shall be only one grade of Inch Shop Common.
2. Cuttings shall be 9½ inches wide or wider, and 18 inches long or longer; or 5 inches wide or wider and 3 feet long or longer.
3. Cuttings 9½ inches wide or wider and less than 3 feet long shall be free from defects on both sides, except white sap.
4. Cuttings 5 inches wide or wider and 3 feet long or longer shall have a C Select or Better, face.
5. Each piece of Inch Shop Common shall contain 50 per cent or more of any one cutting, or combination of cuttings, described in the foregoing rules for this grade.

SHORT BOX.

Short Box shall include lumber 12 to 47 inches long inclusive, 3 inches and wider, and No. 4 and better.

NORTHWESTERN HEMLOCK MANUFACTURERS' ASSOCIATION.

The Northwestern Hemlock Manufacturers' Association adopted grading specifications for hemlock in January, 1899. These grades were generally accepted by the hemlock manufacturers and were recognized by the Bureau of Grades of the Mississippi Valley Lumbermen's Association, being first published in the book of grading rules of this association. Specifications for upper grades of hemlock were adopted January 30, 1906, defining "Thick D and Better," "Inch Clear and Select," and "Inch D Stock." The output of the Association in 1905 was 200,000,000 feet. The following rules were adopted February 20, 1906.

GENERAL INSTRUCTIONS.

[Revised and adopted February 20, 1906.]

The principal objects to be sought in the formulation of these rules are to establish grades that will blend the slight characteristics incident to different localities in such a manner as to produce grades of equal quality and value, and so constructed as to be best adapted to the principal purposes for which hemlock lumber can be utilized.

1. The face side of the lumber is the side showing the best quality or appearance.

2. Defects in lumber should be distributed in proportion to the size of the piece, long or wide pieces of the same grade may contain more and greater defects than shorter and narrower pieces. The same percentage should be observed in both long and short, wide and narrow.

3. Wane in lumber is a defect which can not be described by rule with satisfaction, and therefore must be left to the judgment of the grader. The lowering of grade on the face side on account of wane should be governed by grade, width, and defects in the piece.

4. Lumber must be accepted on grade in the form in which it was shipped. Any subsequent change in manufacture or millwork will prohibit an inspection for the adjustment of claims, except with the consent of all parties interested.

5. Mixed boards do not necessarily require as good edges as ship lap or dressed and matched stock of the same grade.

6. Planing millwork should be taken into consideration in all grades of dressed lumber and its effect on a piece must be left largely to the judgment of the inspector.

7. The grade of partition shall be determined from its poorer side only when the order specifies partition.

8. Lumber when worked shall be graded the same as the respective grades when in the rough.

9. Unless otherwise provided for, lumber worked two sides shall be graded from its better face; lumber worked one side shall be graded from its surfaced face.

10. The examples given in this book do not in all cases include all of the different types in any grade.

WATER STAIN.

11. In hemlock will often be found streaks or patches of red or brown discoloration, sound and firm, the presence of which does not weaken the wood nor detract seriously from its utility. Water stain should not be confused with rot, being firm and strong, while rot is soft and decayed wood.

THICK D AND BETTER.

1. **Thick D and Better** shall be four inches wide and wider, one and one-fourth inch, one and one-half inch and dimension thickness.

2. This grade shall have sound, square edges, and be of the grade of Inch D Stock and Better on the face side, and not below the grade of Inch No. 1 Common on the back of the piece.

EXAMPLES.

Example 1.—Piece 2x4-14, S2S. Has one black, three-fourths inch knot four feet from end, two one-half inch black knots near center. All knots sound and firmly set. No other defects.

Example 2.—Piece 2x4-16, S2S&E. Has one one-inch red knot twelve inches from end; two one-half inch red knots within eight inches of each other, and four feet from end; one three-fourths inch red knot six feet from other end. All knots sound and firmly set. No other defects.

Example 3.—Piece 2x6-16, S4S. Has twelve sound, firmly set red knots from one-eighth to one inch in diameter, scattered over face of piece. No other defects. Good edges.

Example 4.—Piece 2x8-14. Has three red, spike knots from one and one-half to two inches long; one three feet from one end, one four feet from the other end; and the other six feet from same end. There are any number of small, pin knots scattered over the face. All knots red, sound and firmly set. No other defects. Good edges.

Example 5.—Piece 2x8-16, S2S. Has three one and one-fourth inch red knots, located respectively, three feet from one end, one five feet from same end and one near center. Seven one-inch to one-half inch red knots scattered over face. All knots sound and firmly set. No other defects.

Example 6.—Piece 2x10-14. Has two one and three-fourths inch, red knots within twelve-inches of each other six feet from one end and near center crosswise. Three red knots from five-eighths to one inch in diameter scattered over the remainder of the piece. One one-half inch black knot two feet from end. All knots sound and firmly set. No other defects. Edges good.

Example 7.—Piece 2x10-16, S4S. Has three red, sound, firmly set knots from one-half to one inch in diameter within four feet of one end; and fifteen sound, firmly set, black pin knots scattered over the remainder of the piece. No other defects. Good edges.

BOARDS AND STRIPS.

There are five grades made in Boards and Strips.

Inch Clear and Select.
Inch D Stock.
No. 1, or Common.
No. 2, or Sheathing.
No. 3, or Cull.

INCH CLEAR AND SELECT.

1. **Inch Clear and Select** should be four inches and wider, and eight feet long and longer, not to exceed ten per cent eight feet long.

2. This grade is especially adapted for interior finish and only the face, or best side, is expected to show, although some attention should be given to the back of the piece.

3. The face shall show no wane, but the back may show such an amount of wane or other defects as will not interfere with the use of the piece for finishing purposes.

4. No shake or season check shall be allowed on the face side, but a very little tight shake and checks that are not deep, may appear on the back of the piece.

5. This grade will admit on the face side of several tight, pin knots not over three-eighths of an inch in diameter. In a four or six-inch twelve foot and longer piece, not more than three knots are admissible, and proportionately more in a wider piece.

6. A ten or twelve-inch piece twelve feet and longer will not admit of more than three, sound, firmly set knots, not to exceed three-fourths of an inch in diameter. Narrower and shorter pieces will admit of fewer large knots, but not a combination of large knots and other defects.

7. Pieces twelve feet and longer are admissible that will, with not more than ten per cent of waste, produce two clear cuts each four feet long or longer.

EXAMPLES.

Example 1.—Piece 1x4-14, S2S. Has one five-eighths inch, red, sound, firmly set knot six feet from end; and two three-eighths inch, sound, black, firmly set knots, one two feet from one end and the other three feet from the other end. No other defects. Piece has a smooth appearance.

Example 2.—Piece 1x6-16, S2S. Has one three-fourths inch, red knot four feet from end; one three-eighths inch, black knot two feet from end; and one one-half inch, black knot three feet from the other end. All knots sound and firmly set. No other defects.

Example 3.—Piece 1x6-10, D&M. Has one three-eighths inch, black, firmly set knot three feet from end; and one knot of same description two feet from other end. No other defects.

Example 4.—Piece 1x8-14. Has one checked and broken, three-inch knot, five feet from one end. No other defects. This is a cutting piece.

Example 5.—Piece 1x10-16, S2S. Has two red, three-quarters inch knots, one two feet and the other five feet from one end. One, five-eighths inch, black knot three feet from other end; and two, three-eighths inch black knots two and four feet respectively, from the same end. All knots sound and firmly set. Piece has clear edges and good smooth appearance. No other defects.

Example 6.—Piece 1x12-12, S2S. Has three small, firmly set, black knots scattered over two-thirds the length of the board and near the center crosswise. On one end of the back is three inches of wane running to a feather-edge on extreme end but gradually receding and running out three feet from the end from which it starts. No other defects.

Example 7.—Piece 1x12-14, S2S. Has one three-fourths inch and two, three-eighths inch, firmly set, black knots scattered over three feet of the face of the piece near center; one, one-half inch red knot ten inches from end. No other defects.

Example 8.—Piece 1x12-16, S2S. Has three three-fourths inch, red, and two, three-fourths inch, black knots, all sound and firmly set, well scattered lengthwise, and within five inches of the center of the piece crosswise. No other defects.

Example 9.—Piece 1x6-14, S2S. Has one three-eighths inch, black knot three feet from end; and one, one-half inch, black knot four feet from the other end. Both knots sound and firmly set. Otherwise perfect face. On the back, six feet from the end, near the center of the piece crosswise, is very slight, fine shake covering about two by six inches. This shake does not go thru the face of the piece.

Example 10.—Piece 1x8-16. Has three one-half inch, sound, firmly set, black knots scattered over seven feet of the piece. Otherwise perfect face. On the back, commencing five feet from the end and extending along for three feet, are seven checks from two to four inches long, running diagonally. These checks do not extend thru, or seriously weaken the piece.

INCH D STOCK.

1. **Inch D Stock** shall consist of Boards and Strips below the grade of Clear and Select four inches and wider, and eight feet long and longer, not to exceed ten per cent eight feet long, and must be of a sound and water-tight character.

2. All knots must be sound and firmly set. Red knots must not exceed one and one-fourth of an inch in diameter, and spike knots must not exceed in length one-fourth the width of the piece. Black knots must not exceed three-fourths of an inch in diameter and must be especially well set.

3. A six-inch strip twelve feet long shall not contain more than three defects of the extreme sizes. A wider or longer piece may contain relatively more of these defects; and narrower and shorter pieces relatively less. The general appearance of the piece must be taken into consideration.

4. No shake shall be allowed in this grade, but slight season checks and water stain shall not be considered defects.

5. This grade shall be suitable for sound Drop Siding, Ceiling and Flooring and shall have a smooth appearance, especially on the edges.

EXAMPLES.

Example 1.—Piece 1x4-14, D&M. Has one one-and-one-fourth inch, red knot, and seven, red-and-black knots from three-quarters of an inch to pin knots, all sound and firmly set, scattered over the face of the piece. No other defects.

Example 2.—Piece 1x4-16, D&M. Has seven sound, firmly set, black knots from one-half of an inch to one-eighth of an inch in diameter well scattered over the face of the piece. Eighteen inches of sound, hard, water stain near center of piece. No other defects.

Example 3.—Piece 1x6-10. Has four sound, red, firmly set, spike knots four feet from one end and within ten inches of each other; and four, small, black, firmly set, pin knots well scattered. No other defects. Good edges.

Example 4.—Piece 1x6-10, Drop Siding. Has nine, red knots from one-and-one-fourth inch to one-fourth inch in diameter scattered over face of piece. Edges good and extra smooth looking.

Example 5.—Piece 1x6-10, S2S. Has one three-quarters inch, black knot one foot from end; one, one-fourth inch, black knot four inches from end; and one, one-fourth inch, black knot four feet from same end. All three knots sound and firmly set. Slight season checks on back running diagonally, but not deep enough to go thru to the face or materially weaken the piece. No other defects.

Example 6.—Piece 1x6-12, Drop Siding. Has three red knots scattered over one-half length of piece. On one end one-and-one-fourth inch, red knot; and six red knots from one-half inch to one-eighth of an inch in diameter well scattered over face of piece. No other defects.

Example 7.—Piece 1x6-12. Has one red, sound, firmly set spike knot running from edge one and one-half inch towards center of piece to a point. Fifteen sound, firmly set black and red knots from one inch to one-eighth of an inch in diameter, well scattered. No other defects.

Example 8.—Piece 1x6-16, D&M. Has three one-eighth to one-half inch black knots scattered over five feet on one end of piece. On other end there is wane on one side of the back, running across the piece for three inches and nearly to face in depth, and extending three feet in length. On opposite edge, one inch of wane one-half inch deep and running out two feet from the end from which it starts. No other defects.

Example 9.—Piece 1x8-12, Drop Siding. Has one red, sound, firmly set spike knot running from edge two inches toward the center of the piece and located four feet from the end. One three-fourths inch, black knot six inches from end, and seven black knots from one-half to three-eighths of an inch in diameter. All sound, firmly set and well scattered. No other defects. Face and edges smooth and well milled.

Example 10.—Piece 1x8-12, Drop Siding. Has one one-and-one-fourth inch red knot near center and fourteen red knots from one-eighth to one-half inch, well scattered. All knots sound and firmly set. Good edges and smooth appearance.

Example 11.—Piece 1x8-16, Drop Siding. Has five red knots and eight black knots, all sound, firmly set and well scattered over face of piece. For four feet on one end there is five inches of water stain of a brown color, but it is as hard and firm as any part of the piece. No other defects.

Example 12.—Piece 1x10-10, S1S. Has five three-fourths inch, and two one-half inch red knots; and three one-fourth inch black knots, all sound, firmly set and well scattered over face of piece. Slight traces of water stain for three feet on half length of piece. No other defects. Smooth face and edges.

Example 13.—Piece 1x10-16, S1S. Has one three-fourths inch, two one-half inch, and five small pin knots, all black, sound, firmly set and well scattered over one-half the length of the piece. No other defects.

Example 14.—Piece 1x12-12, S1S. Has one three-fourths inch knot eight inches from one end; one three-fourths inch knot two feet from same end; one one-half inch knot four feet from other end; and two one-half inch knots near center, all black, sound and firmly set. There are five season checks from four to six inches long for six feet on back, but they are narrow and do not go through to face.

Example 15.—Piece 1x12-16. Contains six one and three-fourths inch red knots, and fourteen red knots from one inch to one-half inch in diameter, all sound and firmly set, evenly scattered over the face of the piece. Edges smooth and face has smooth, tight appearance.

Example 16.—Piece 1x12-16. Has fourteen sound, firmly set, red knots from one and one-fourth inch to pin knots well scattered over face. No other defects. Edges smooth.

Example 17.—Piece 1x12-16, S2S. Three inches from one end, ten inches from the other end, and in the center of the board respectively, are three one-and-one-fourth inch red knots, well scattered lengthwise; and near the center of the piece crosswise, are two one-inch and two three-fourths inch red knots. All knots sound and firmly set. No other defects.

NO. 1, OR COMMON.

1. The Grade of No. 1, or Common, in boards or strips, includes stock of a generally sound character.
2. Some shake is admissible.
3. Numerous knots, whether red or black.
4. An occasional knot hole in a smooth appearing piece, or in a wide, smooth piece two or three small holes.
5. Some water stain of a firm character.

EXAMPLES.

Example 1.—Piece 1x6-16. No. 1, D & M. Shows a half-inch knot hole three feet from end, also two half-inch edge knots sloughed off, but not leaving holes. There are twelve other knots one inch and less in diameter, two having unsound centers. With these defects it still retains a good appearance.

Example 2.—Piece 1x6-16. No. 1, D & M. Shows considerable shell shake for three feet at one end; at other end machine has gouged out a piece one-half inch deep and two inches in diameter. There are also two one-half-inch black knots near center.

Example 3.—Piece 1x8-14. No. 1, S 1 S. Has four sound, red knots averaging one and one-half inches in diameter; six sound, red knots under one inch in diameter, all well scattered; one unsound black knot one inch in diameter, one foot from end, and three feet from same end a knot hole one inch in diameter. With the exception of this end, the piece has a very sound, smooth appearance. No shake.

Example 4.—Piece 1x8-12. No. 1, Ship Lap. There are nine sound, red knots one and one-quarter inches and less in diameter, scattered over the face. Machine has gouged a hole three-quarters by one and one-half inch on one edge near end and a small amount of shake appears near end.

Example 5.—Piece 1x8-12. No. 1, S 1 S. Has six black knots three-quarters to one inch in diameter and three three-eighths-inch black knots, also two feet of shake at one end.

Example 6.—Piece 1x8-12. No. 1, Ship Lap. Shows a two and one-half inch sound, red knot at one end, at center a one-half inch knot hole. Directly opposite this knot hole the machine tore out on edge a piece one-half inch deep by two inches long, and within four feet from other end are three black knots, one being one inch in diameter and two three-quarters inch in diameter; also shows three short season checks.

Example 7.—Piece 1x10-16. No. 1, Ship Lap. Is peppered with red and black knots one and one-half inches and less in diameter over the entire face. One three-quarter inch knot is unsound; two inches deep along one edge for eight feet is tight shake, and the opposite edge shows nearly as much. Piece very smooth in appearance.

Example 8.—Piece 1x10-16. No. 1, S1S. A discoloration or water stain is shown over the face of this piece for four feet at one end and spots of stain over balance of face. Also local shake in two places. Piece has the general appearance of a select.

Example 9.—Piece 1x10-16. No. 1. Shows heart shake for five feet along the center, four cross or horn knots one by three inches and three feet from end a thin spot one foot long that machine could not surface.

Example 10.—Piece 1x10-16. No. 1, S 1 S. Has six black knots three-quarters inch and less in diameter. One sound, red knot one and one-half inches in diameter, and a spot of hard rot two by eight inches that does not go through.

Example 11.—Piece 1x12-16. No. 1, S 1 S. Shows shell and heart shake in spots the entire length, but shake does not extend through the board. Also several horn knots that are small and sound. General appearance good.

Example 13.—Piece 1x12-16. No. 1, S 1 S. Shows numerous small, red and black knots scattered over face. Two one-half inch black knots have fallen out, but piece is so smooth in appearance it will stand the holes.

NO. 2, OR SHEATHING.

1. Boards or strips will admit of considerable shake.
2. Black, unsound knots.
3. Two or three good sized knot holes, or more of small ones.
4. Streaks or patches of discoloration, showing partial decay.
5. The grade can be safely recommended for ordinary sheathing or roof boards.

EXAMPLES.

Example 1.—Piece 1x6-16. No. 2, D & M. Has been badly torn by machine in four or five places; otherwise sound.

Example 2.—Piece 1x6-12. No. 2, D & M. Has one-inch edge knot hole near one end, two three-fourth inch knot holes three feet from same end and a three-fourth inch loose knot twelve inches from hole, and at other end an inch loose black knot.

Example 3.—Piece 1x8-16. No. 2, Ship Lap. Within four feet of one end shows two one-half inch knot holes, also small piece broken out on edge by machine; at other end a three-fourth inch knot hole. Balance of piece a sound, knotty appearance.

Example 4.—Piece 1x8-14. No. 2, Ship Lap. Has shell shake for three feet at one end, two feet of shell shake at center, a one and one-half inch knot hole four feet from other end and two one-half inch black knots.

Example 5.—Piece 1x8-16. No. 2, D & M. For three feet at one end is an extensive shell or cross shake, also an inch hole on edge torn by machine. At center a two-inch loose, black knot; at the other end a one and one-fourth inch unsound knot.

Example 6.—Piece 1x8-14. No. 2, Rough. Has three one-inch knot holes within eight feet; two black three-fourth-inch knots at center and two feet of shake at end.

Example 7.—Piece 1x10-12. No. 2, Ship Lap. Has extensive shake half the width of piece the entire length. No other imperfection excepting a few sound, red knots.

Example 8.—Piece 1x10-16. No. 2, S 1 S. Shows extensive shake for four feet near center, several coarse, sound knots and stain over one-half of piece.

Example 9.—Piece 1x10-14. No. 2, Rough. Has a two and one-half inch knot hole, two feet from end, and one and one-half inch black knot along side of it. At other end a two-inch unsound knot and a small amount of shell shake through center of board.

Example 10.—Piece 1x12-16. No. 2, S 1 S. Has a straight split two feet long, at one end from which extend red streaks two inches wide by three feet long at center; a two-inch black, unsound knot, with four feet of very tight shake at other end.

Example 11.—Piece 1x12-14. No. 2, Rough. Within four feet from one end are eight black knots one inch and less in diameter. One one-inch knot hole; an open season check eighteen inches long. At other end shell shake for three feet and three three-fourths inch black knots.

NO. 3, OR CULL BOARDS AND STRIPS.

1. This is the lowest grade made in hemlock.
2. The defects may consist of very excessive shake.
3. Badly shattered stock.
4. Very coarse, unsound knots.
5. A great deal of rot.
6. Excessive cross checks.

EXAMPLES.

Example 1.—Piece 1x8-16. No. 3. Has three three-inch knot holes within six feet from end. Three large, coarse knots and two black, unsound knots.

Example 2.—Piece 1x8-14. No. 3, Rough. Has three large, rotten knots, two inches and over in diameter; one edge knot hole and back of board is two-thirds slab.

Example 3.—Piece 1x8-14. No. 3, Rough. Is streaked with rotten sap. Is coarse knotted, badly checked and one-half inch of edge split off for three feet.

Example 4.—Piece 1x10-16. No. 3. On one side shows extensive soft rot two-thirds its entire length and streaked with rot on other side.

Example 5.—Piece 1x10-16. No. 3, Rough. Contains all the defects known to hemlock, rot, shake, coarse knotted, and yet can be used as a whole.

Example 6.—Piece 1x12-14, No. 3, Rough. Is badly shattered by shake from end to end. Also coarse knotted and streaked with rot.

Example 7.—Piece 1x12-16. No. 3, Rough. Is excessively cross checked.

PIECE STUFF OR DIMENSION.

NO. 1 DIMENSION.

1. The grade of No. 1 Dimension will admit of shake that will not materially affect the strength of the piece.
2. Also knots, either black or red, that are well located and fairly sound.
3. Or a knot hole that will not impair its strength.
4. Or some slight cross checks, or sound water stain.
5. This grade, while admitting the above defects, must at the same time retain the element of strength required for any ordinary building purposes.

EXAMPLES.

Example 1.—Piece 2x4-12. No. 1. Shows heart shake along one edge for half length and one foot of same on other side of same face; two sound branch knots, three-fourths inch wide.

Example 2.—Piece 2x4-12. No. 1. Shows shake running along one face with grain for nearly its entire length; does not show on other face and therefore strong enough for building purposes.

Example 3.—Piece 2x4-16. No. 1. With exception of extensive stain on one side and five very small, round knots, the piece is perfect.

Example 4.—Piece 2x4-16. No. 1. One side is perfect. On the other, six worm holes and somewhat checked, but does not affect the strength of piece.

Example 5.—Piece 2x4-16. No. 1. Has six sound, black knots, well scattered; one is two inches in diameter; two are one and one-half inches in diameter and balance are less than one inch. While the knots are black, they are firm, well set and piece considered sound.

Example 6.—Piece 2x8-16. No. 1. Shows five one-inch black knots, and two one and one-half inch red knots, all running through the piece and well scattered. On one edge for four feet at one end is wane one-half inch by three-fourths inch deep.

Example 7.—Piece 2x8-12. No. 1. Shows a streak of red stain half its length on one side only. Two sound red knots two inches in diameter, four feet apart, and one and one-half inch knot sloughed off one edge.

Example 8.—Piece 2x8-14. No. 1. Shows a straight split for two feet at one end and at other end shake for three feet on one side only; otherwise sound.

Example 9.—Piece 2x8-14. No. 1. Has one and one-half inch round knot hole across one edge one foot from end, also one two-inch and three one and one-quarter inch sound, red knots, well scattered. No other defects.

Example 10.—Piece 2x8-16. No. 1. Shows heart shake and numerous small, sound, red knots for entire length of one side; otherwise perfect.

Example 11.—Piece 2x12-12. No. 1. Shows shell shake four inches by three feet on one side, a straight split on one end one foot long; one three-quarter inch unsound knot and two black knots one inch in diameter.

Example 12.—Piece 2x12-14. No. 1. At four feet from one end has one and three-quarter inch knot hole on one edge, and on opposite edge three feet of tight shake; otherwise perfect.

Example 13.—Piece 2x12-14. No. 1. Shows considerable tight shake for six inches over two-thirds its face; also one black horn knot one-half by three-quarters inch near center. Shake does not go through and piece has strength to carry it.

Example 14.—Piece 2x12-16. No. 1. Has five black knots one and one-half inches diameter and four one-half inch black knots. One of the largest knots unsound; also numerous checks six inches long, lengthwise of the piece. While it shows many defects, it is strong enough for any building purpose, but simply on appearance would be considered a line piece.

Example 15.—Piece 2x12-16. No. 1. Shows shake over entire face for full length, very little of it going through; several small, sound, red knots.

Example 16.—Piece 2x12-14. No. 1. Has a select appearance and nearly perfect. Shows no defects except a short, straight check at one end.

NO. 2 DIMENSION.

1. The grade of No. 2 in dimension includes stock not good enough to be classed as No. 1, and the defects admissible are of the same general character as the defects found in No. 1, except that they are more pronounced.
2. It is the lowest grade recommended for ordinary building purposes.
3. Considerable shake, large unsound knots, loose knots, knot holes, and cross checks are all admissible in this grade, but not a serious combination of these defects in any one piece.
4. This grade can be recommended for cheap construction in small buildings.

EXAMPLES.

Example 1.—Piece 2x4-16. No. 2. Shows four feet of rot on both sides, but not so extensively as to materially weaken the piece. Otherwise sound.

Example 2.—Piece 2x4-16. No. 2. Shows rot on one side for two and one-half feet and a large, coarse branch knot that weakens it too much for No. 1.

Example 3.—Piece 2x4-16. No. 2. Is a heart piece and shows shake along one edge nearly the entire length. At one end shake shatters it enough to weaken piece somewhat.

Example 4.—Piece 2x4-16. No. 2. Shows wane across the piece three-quarters-inch deep on one side for five feet.

Example 5.—Piece 2x6-16. No. 2. Shows some shake for two feet at one end and one-half dozen small, sound, red knots scattered over the face, and streak of firm, hard rot two to three inches wide, running for three feet in length. This rot shows through on both sides and one edge.

Example 6.—Piece 2x6-16. No. 2. Has ten coarse knots from one and one-half to two inches in diameter, well scattered. One knot hole one and one-half inches in diameter on edge and shows shell shake over two-thirds of face.

Example 7.—Piece 2x8-12. No. 2. Has a two and one-half inch knot hole in center, four feet from end, and one face shows shell shake for four feet.

Example 8.—Piece 2x8-12. No. 2. Has extensive shake five feet from one end and seven small, sound, black knots. If it were not for the character of the shake, which is crosswise of the piece, and weakens it, it would be considered a good No. 1.

Example 9.—Piece 2x10-14. No. 2. Shows moderately tight shake for one-half its length and on one side three feet from end, wane, three inches wide, three-quarter inch deep extending for three feet. It is graded down strictly on account of appearance.

Example 10.—Piece 2x12-16. No. 2. At one foot from end on one edge shows a hole one by three inches where knot is sloughed off one side. At center two knot holes one foot apart, and one and one-half inches in diameter. There are also five small, sound, red knots and two feet of shake.

CULL PIECE STUFF.

1. This grade cannot be recommended for ordinary construction.

2. The defects are very excessive shake, or badly shattered stock, numerous knot holes, very large, coarse, rotten knots, or considerable rot.

Examples.

Example 1.—Piece 2x4-12. No. 3. Has four very coarse knots and one and one-half inch knot hole and considerable rot at one end. There is no strength to the piece.

Example 2.—Piece 2x6-16. No. 3. Has three two-inch rotten knots with holes part way through from one face; on the other side considerable soft rot for half the length of the piece.

Example 3.—Piece 2x6-16. No. 3. Has a straight split at one end for six feet. The remainder of the piece is badly shattered with shake.

Example 4.—Piece 2x6-14. No. 3. Within four feet of one end, has a knot hole so large as to leave only three inches of lumber. Is extremely shaky and otherwise weakened by defects.

Example 5.—Piece 2x6-12. Has a combination of coarse knots, and open shake to such an extent as to weaken it for anything but temporary building purposes.

Example 6.—Piece 2x8-16. No. 3. Contains soft rot over one face for six feet and is extremely shaky.

Example 7.—Piece 2x12-16. No. 3. Shows open shake for one-half its face for full length and balance of the piece shows extensive water stain.

Example 8.—Piece 2x12-16. No. 3. Shows a dozen large, coarse knots, a great deal of shake and extensive rot three to six inches wide running through the piece.

OREGON AND WASHINGTON LUMBER MANUFACTURERS' ASSOCIATION.

Organized April 18, 1905.

The first meeting of the association was held at Portland, Oreg., May 27, 1905. The rules for grading Fir, Spruce, Cedar, and Hemlock lumber are identical with those adopted by the Pacific Coast Lumber Manufacturers' Association and the Southwestern Washington Lumber Manufacturers' Association at Seattle, Wash., March 30, 1906. (See p. 93.) The rules for shingles are given below. The total amount of lumber manufactured by the members of this association during 1905 was approximately 444,000,000 feet.

In cooperation with the Pacific Coast Lumbermen's Association it is proposed to have all shipments of lumber by vessel tallied and inspected at the mill, and a little later to apply the same system to rail shipments.

SHINGLES.

Perfections.—18 inch, random widths, five butts must measure $2\frac{5}{16}$ inches plump in thickness when green, or $2\frac{1}{4}$ inches after drying. Must be well manufactured, strictly clear in every respect, and 90 per cent vertical grain. Will not admit any shingles narrower than 3 inches.

Puget A.—Same thickness as Perfections. Must be well manufactured; will admit sound knots 8 inches from butt, 16-inch shims; also admits slash-grain shingles, otherwise must be clear. Will not admit shingles narrower than 2 inches.

Eureka.—18 inch, random widths, five butts must measure $2\frac{1}{16}$ inches in thickness when green, or 2 inches after drying. Must be well manufactured, strictly clear in every respect, and 90 per cent vertical grain. Will not admit any shingles narrower than 3 inches.

Skagit A.—Same thickness as Eureka. Must be well manufactured. Will admit sound knots 8 inches from butt; 16-inch shims. Also admit slash-grain shingles; otherwise must be clear. Will not admit shingles narrower than 2 inches.

Extra Clear.—16 inch, random widths, five butts must measure $2\frac{1}{16}$ inches in thickness when green, or 2 inches after drying. Must be well manufactured, strictly clear in every respect, and 90 per cent vertical grain. Will not admit any shingles narrower than 2 inches.

Choice A.—Same width and thickness as Extra Clear. Must be well manufactured. Will admit sound knots 6 inches from butt; also slash-grain shingles, wane edge, sap, 14 inch shims, $\frac{1}{2}$-inch knotholes or worm holes 6 inches from butt: otherwise must be clear.

Extra ★A★.—16 inch, random widths, six butts must measure $2\frac{1}{16}$ inches green, or 2 inches after drying; must be well manufactured. Will admit sound knots 10 inches from butt; otherwise must be strictly clear, and 90 per cent vertical grain. Will not admit any shingles narrower than 2 inches.

Standard A.—Same width and thickness as Extra ★A★; must be well manufactured. Will admit sound knots 6 inches from butt, slash-grain shingles, wane edge, sap, 14-inch shims, $\frac{1}{2}$-inch knot holes or more holes 6 inches from butt; otherwise must be clear.

Shingles with the following defects are culls, and must not be put in any of the above grades: Rot, worm holes, except as above provided, check, shake, stub corners, tapering edges, rough, waney, or unevenly sawn.

Eighteen inch, 5 to $2\frac{1}{4}$ inch shingles, must be packed 20 courses per bunch, 5 bunches to the M. Eighteen inch, 5 to 2 inch, and 16-inch shingles, must be packed 25 courses to the bunch; 4 bunches to the M. All shingles must be packed in the regulation frame, full 20 inches in width, and no opening of more than $1\frac{1}{2}$ inches is admissible in any one course.

All shingles to be packed as closely as possible. Bands should not be shorter than $19\frac{1}{2}$ inches in length. Every bunch of shingles must be branded.

Dimension shingles are packed 24 courses in each bunch.

PACIFIC COAST LUMBER MANUFACTURERS' ASSOCIATION.

Organized January 10, 1903.

The grades for the coastwise trade were first established many years ago. Grades for rail trade were established in 1901 and those for export trade in 1903.

On March 1, 1903, an inspection bureau was formed for the purpose of inspecting cargo shipments. The inspection bureau has recently been organized to inspect all three classes of shipments. The rules for grading rail shipments were revised and adopted March 30, 1906.

The output in 1905 was 2,000,000,000 feet.

CARGO BRANCH.

STANDARD DIMENSIONS AND GRADING RULES FOR EXPORT TRADE.

[Copyrighted 1902.]

NOTES TO SURVEYORS.

SALE MEASURE.

All intermediate (odd or fractional) lengths shall be measured as of contents of next longer length unless otherwise instructed by loading mill.

All lumber sawn less than one inch in thickness shall be measured as of one inch—i. e., at surface measure.

All rough lumber, one inch and over in thickness, shall be measured at board-measure contents.

All worked or surfaced lumber shall be measured at the board-measure contents before working.

Sizes 4 inches and under in thickness or 6 inches and under in width will be worked ⅛ inch less for each side or edge surfaced.

Sizes over 4 inches in thickness or over 6 inches in width will be worked ¼ inch less for each side surfaced.

Tongued and grooved, surfaced one side, will be worked ⅛ inch less in thickness; ⅝ inch narrower on face.

Above references being to "Green" lumber, the worked sizes, if of partially or wholly seasoned lumber, will be proportionately less, as determined by the shrinkage.

Surveyor, on completion of loading, shall furnish an inspector's certificate, sworn to before a notary public, certifying as to the character of the shipment.

RULES.

Merchantable.—This grade shall consist of sound, strong lumber, free from shakes, large, loose, or rotten knots and defects that materially impair its strength; well manufactured and suitable for good substantial constructional purposes. Will allow occasional variations in sawing or occasional scant thicknesses, sound knots, pitch seams, and sap on corners, ⅓ the width and ½ the thickness. Defects in all cases to be considered in connection with the size of the piece and its general quality.

Seconds.—This grade shall consist of lumber having defects which exclude it from grading as "Merchantable." Will allow knots and defects which render it unfit for good substantial constructional purposes, but suitable for an inferior class of work.

Selects.—Shall be sound, strong lumber, good grain, well sawn. Will allow in sizes 6x6 and less, knots not to exceed one inch in diameter; sap on corners ¼ the width and ¼ the thickness; small pitch seams when not exceeding 6 inches in length. In sizes over 6x6, knots not to exceed 2″ in diameter, varying according to the size of the piece; sap on corner not to exceed 2″ on both face and edge; pitch seams not to exceed 6″ in length. Defects in all cases to be considered in connection with the size of the piece and its general quality.

Clears.—Edge Grain Clears, in widths 12 inches and wider, shall show edge grain on face for at least ¾ of width, and otherwise free from defects on one face and two edges. Other Clears shall be sound, close-grained lumber, well sawn, one side and two edges, free from knots and other defects impairing its use for the purpose intended.

Will Allow: In dimensions two inches and less in thickness, of contents 24″ or less to the linear foot: Narrow pitch seams not over 4″ long, when not extending through the piece, and small knots when appearing on one side only: Small amount of light-colored sap when not exceeding ⅛ the width or ¼ the length.

In dimensions 3″ to 6″ thick, 6″ to 10″ wide: Narrow pitch seams not over 6 inches long on one side or edge. Light-colored sap not exceeding ¼ face or edge or ½ the length. Knots not exceeding 1″ in diameter when on one side lower half of edges.

In dimensions larger than above. Pitch seams when not extending through the piece. Light-colored sap on corners not exceeding 3″ on face and edge. Knots 2″ and less in diameter, according to size of piece, when on one face and one-half of each corresponding edge, leaving one face and upper half of each edge clear.

Ship Plank.—Including outboard planking, garboards, wales, clamps, rails, and lumber for similar purposes, shall be close-grained lumber, free from large knots or other defects impairing its use for the purpose required. Will allow sap on edges not exceeding ¼ the face and ½ the length. Sound hard knots not exceeding 1¼″ in diameter when not on corners or calking portion of edges. Pitch seams if narrow and not extending through the piece.

Deck Plank.—Shall be uniformly sawn, close grained and free from knots and defects on one face and calking edges. Flat sizes shall show edge grain on broad face. Will allow sap on corners of upper side not exceeding ¼ face width or ⅓ length. Sound, hard knots not exceeding 1″ in diameter on lower side and lower half to calking edge.

Flooring.—No. 1: 3″, 4″, or 6″ shall be practically edge grain, free from all defects and well manufactured. No. 2: 3″, 4″, or 6″ may be either edge or slash grain and conform generally to the grade of "Clears." It shall be well manufactured, but will admit of slight roughness in dressing and bright sap.

Ceiling.— 3″, 4″, and 6″ shall conform generally to the grade of No. 2 flooring.

Stepping No. 1.—This grade shall show edge grain on face to extent of not less than three-fourths of width and free from defects on face and edges and shall conform generally to grade of "Clears."

Stepping No. 2.—This grade shall show edge grain on face to extent of not less than one-half its width and conform generally to grade of "Selects."

Rustic.—No. 1: 6″ and 8″ shall conform generally to the grade of No. 2 flooring. No. 2 shall conform generally to the grade of "Select."

RAIL SHIPMENTS.

RULES FOR GRADING FIR, SPRUCE, CEDAR, AND HEMLOCK LUMBER.

[Adopted March 30, 1906, by the Pacific Coast Lumber Manufacturers' Association, Southwestern Washington Lumber Manufacturers' Association, Oregon and Washington Lumber Manufacturers' Association.]

GENERAL INSTRUCTIONS.

All lumber is graded with special reference to its suitability for the use intended.

With this in view each piece is considered and its grade determined by its general character, including the sum of all its defects.

What is known as "Yard Lumber" such as Dimension, Common Boards, Finish, etc., is graded from the face side, which is the best side, except that lumber which is dressed one side only is graded from the dressed side.

Factory lumber which is used for the manufacture of Doors, Sashes, etc., and must show on both sides, is always graded from the poorest side. Grade is based upon the quantity of clear cuttings obtainable.

The defects in lumber are to be taken in connection with the size of the piece, and for this reason wider and longer pieces will carry more defects than smaller pieces in the same grade.

Grade of lumber is determined at time of shipment and cannot be reconsidered after further working.

A shipment of any grade must consist of a fair average of that grade, and cannot be made up of an unfair proportion of the better or poorer pieces that would pass in that grade.

Material not conforming to standard sizes shall be governed by special contract.

Standard lengths for all lumber are multiples of two feet, except that the standard lengths for Flooring, Ceiling, Siding, Rustic and Finish are multiples of one foot.

Odd and fractional lengths shall be counted as next higher standard length.

All dressed lumber shall be measured and sold at the full size of rough material used in its manufacture.

All lumber one inch or less in thickness shall be counted as one inch thick.

DEFECTS.

Recognized defects are knots, knot holes, splits, checks, wane, rot, rot streaks, worm holes, pitch seams, pitch pockets, torn or chipped grain, discoloration and imperfect manufacture.

Knots.—Shall be classed as sound or loose as to quality and large or small as to size.

Splits and Checks.—Shall be considered as to length and direction.

Wane.—Is bark or lack of wood from any cause on edges of lumber.

Pitch Seams.—Are clearly defined openings between the grains of the wood, are generally filled with granulated pitch, and a serious defect and not admissible in any grade above No. 2 Common.

Pitch Pockets.—Are openings between the grains of the wood containing more or less pitch, and are surrounded by sound grain wood.

Torn or Chipped Grain.—Is usually caused by dressing against the grain and is more or less of a defect according to its depth or extent.

Discoloration.—May be the result of various causes and will only be considered a defect when it will damage the piece for use intended.

MISCELLANEOUS.

Defects in rough stock caused by improper manufacture and drying will reduce the grade, unless they may be removed by dressing such stock to standard sizes.

Imperfect manufacture in dressing stocks, such as torn grain, broken knots, mismatching, insufficient tongue or groove on Flooring, Ceiling, Drop Siding, etc., shall be considered defects and will reduce the grade accordingly as they are slight or serious in their effect on the use of the stock. Pieces of either Flooring, Ceiling, Drop Siding, etc., having less than $\frac{3}{16}''$ of tongue will not be admitted in any grade above No. 3 Clear. Pieces with $\frac{3}{16}''$ or more of tongue will be admitted in any grade.

In all grades of Flooring, Ceiling, Drop Siding, etc., wane on the reverse side not exceeding one-third the width and one-sixth the length in any piece, provided the wane does not extend into the tongue, is admissible.

FIR.

Fir is sawn and sorted with reference to the direction of the grain. The "Edge Grain" (called "E. G." in these rules and all price lists) has the grain at or nearly at right angles with the face of the board, and is adapted to Flooring, Stepping, etc., because it does not "sliver" with wear. "Flat Grain" ("F. G.") means that the grain is parallel or nearly parallel with the face of the board. The Flat Grain is selected for finish because of the beauty of the wood in this form.

NAMES AND GRADES.

Flooring.—
    No. 1 Clear E. G.   No. 2 Clear E. G.   No. 3 Clear E. G.
    No. 1 Clear F. G.   No. 2 Clear F. G.   No. 3 Clear F. G.
Ceiling.—
    No. 1 Clear.   No. 2 Clear.   No. 3 Clear.
Drop Siding.—No. 1 Clear.   No. 2 Clear.   No. 3 Clear.
Partition.—No. 1 Clear.   No. 2 Clear.   No. 3 Clear.
Bevel Siding.—No. 1 Clear.   No. 2 Clear.   No. 3 Clear.
Stepping.—No. 1 Clear E. G.   No. 2 Clear E. G.   No. 3 Clear E. G.

Finish.—No. 1 Clear. No. 2 Clear. No. 3 Clear.

Tank Stock.—No. 2 Clear and Better.

Wind Mill Stock.—Selected Common.

Common Boards.—

Fencing.—

Shiplap.—

Joists and Scantling.—

Timbers.—Common.

Battens.—One grade only.

Wagon Bottoms.—One grade only.

Pickets.—Flat, one grade only.
Square, one grade only.

Factory Lumber.—Select and Better; No. 1 Shop. No. 2 Shop. 1 inch Shop, Turning Squares.

Car Material.—Sills; Decking; Siding; Roofing; Lining and Framing.

FLOORING.

No. 1 Clear.—Edge Grain, 3, 4 and 6 inch. Shall be well manufactured, and free from all defects. Angle of grain not less than 45 degrees.

No. 2. Clear.—Edge Grain, 3, 4 and 6 inch. Shall be well manufactured. Angle of grain not less than 45 degrees. Will admit of slight roughness in dressing, and from one to three small close pitch pockets, or equivalent defects.

No. 3 Clear.—Edge Grain, 3, 4 and 6 inch. Angle of grain not less than 45 degrees. Will admit of roughness in dressing; two or three small knots not over ¾ inch in diameter or eight small pitch pockets, any three of which may be open. It is generally understood that this grade will admit such defects or combination of defects as will not impair its utility for cheap floors.

No. 1 Clear.—Flat Grain, 3, 4 and 6 inch. Shall be free from all defects; well manufactured, and all Flat Grain.

No. 2 Clear.—Flat Grain, 3, 4 and 6 inch. Shall be well manufactured and flat grain; will admit of slight roughness in dressing. Either of the following also permitted with the above: Three close pitch pockets, not to exceed two inches in length; three small tight smooth knots ½ inch in diameter, or their equivalent of combined defects.

No. 3 Clear.—Flat Grain, 3, 4 and 6 inch. Will admit of roughness in dressing; four small knots not over ¾ inch in diameter, or eight small pitch pockets, any three of which may be open, or without the above defects, three knots not over ½ inch in diameter, or the equivalent of combined defects.

It is generally understood that the grade will admit such other defects or combination of defects as will not impair its utility for cheap floors and sheathing.

CEILING.

No. 1 Clear.—4 or 6 inch. Shall be strictly clear, well manufactured. Both Edge and Flat Grain admissible.

No. 2 Clear.—4 or 6 inch. Shall be well manufactured. Will admit of slight roughness in dressing. Either of the following also permitted with the above: Three close pitch pockets, not to exceed 2 inches in length, three small, tight, smooth knots ½ inch in diameter, or their equivalent of combined defects. Both Edge and Flat Grain admissible.

No. 3 Clear.—4 or 6 inch. Allows any three of the following defects: 25 per cent of the face may be rough from dressing. 4 inch stock admits of not to exceed six tight knots ¾ inch in diameter or two knots 1 inch in diameter, or three open pitch pockets not to exceed 4 inches in length, or an equivalent number of tight pitch pockets. 6 inch is correspondingly graded, with proportionately greater defects. Both Edge and Flat Grain admissible.

PARTITION.

4 or 6 inch.—Shall be graded same as Ceiling on the face side, with the reverse side not more than one grade lower.

PORCH DECKING, DROP SIDING AND RUSTIC.

No. 1 Clear.—6 or 8 inch. Shall be well manufactured and free from all defects. Both Edge and Flat Grain stock admissible.

No. 2 Clear.—4, 6 or 8 inch. Shall be well manufactured. Slight roughness in dressing admissible; will allow three small, tight knots not more than ½ inch in diameter or four pitch pockets, or their equivalent of combined defects.

No. 3 Clear.—4, 6 or 8 inch. Will admit of roughness in dressing; four or five knots not larger than 1 inch in diameter, or eight small pitch pockets, any three of which may be open, or their equivalent of combined defects.

PORCH DECKING.

Shall be graded the same as Drop Siding.

BEVEL SIDING.

No. 1 Clear.—4 and 6 inch.

Shall be practically free from defects, will admit of very slight defects on thin edge, which will cover when laid.

No. 2 Clear.—4 and 6 inch.

Will admit of slight defects in dressing or two close pitch pockets or other minor defects, but each piece shall be suitable for use the full length without waste.

No. 3 Clear.—4 and 6 inch.

Will admit of small sound knots, small pitch pockets, roughness in dressing or other recognized defects, but not to exceed four of any of the said defects or their equivalent in any one piece.

STEPPING.

No. 1 Clear.—8 to 14 inch Clear. Shall be well manufactured. Edge Grain, angle of which must not be less than 45 degrees.

No. 2 Clear.—8 to 14 inch. Same as No. 1 Clear, except will allow slight roughness in dressing and four close pitch pockets, or equivalent defects.

FINISH, CASING AND BASE.

No. 1 Clear.—4 to 12 inch. Shall be free from all defects on one side. Any grain admitted.

No. 2 Clear.—4 to 12 inch. Must be well manufactured, except slight roughness in dressing. Will admit three tight knots, not over ½ inch in diameter, or three close pitch pockets or their equivalent of combined defects.

No. 3 Clear.—4 to 12 inch. Will admit of roughness in dressing, four small knots not over ¾ inch in diameter, or eight small pitch pockets, any three of which may be open, or without the above defects, three knots not over 1 inch in diameter or the equivalent of small knots or other defects.

Above rules based on stock 8 to 10 inches by 16 feet. Wider stock in both Stepping and Finish to contain proportionately greater defects. Straight splits and checks not exceeding width of piece admissible.

WAGON BOTTOMS.

To be graded the same as No. 2 Flooring.

TANK STOCK, SELECTED COMMON, WIND MILL STOCK AND FENCING.

Common Fencing must be manufactured from sound stock; may contain sound knots equal in diameter to not over one-third of the width of the piece, or spike knots the length of which is not over one-half the width of the piece. May contain wane ½ inch deep on edge, for one-half the length of any piece, measured on one side.

COMMON BOARDS AND SHIPLAP.

Common Boards, S1S, and Common Shiplap, shall be manufactured from sound stock. Will admit of any two of the following defects: Wane ½ inch deep on edge and one-sixth of the length of any piece, tight sound knots, none of which shall be larger than 3 inches in diameter, or equivalent spike knots, one split not more than 16 inches long. These boards should be firm and sound, suitable for use in ordinary construction, and serviceable without waste. Roughness in dressing admissible.

JOIST AND SCANTLING.

Common Fir Joist and Scantling must be of good character. Will admit of coarser knots than 1 inch common. Some wane edge admissible. Generally speaking, there should be no imperfections that seriously impair the strength of the piece.

ROUGH TIMBERS.

Rough timbers, 4x4 and larger, shall not be more than ¼ inch scant when green, and be evenly manufactured from sound stock, and must be free from knots that will materially weaken the piece.

Timbers 10x10 in size may have a 2 inch wane on one corner, or its equivalent on two or more corners, one-fourth the length of the piece. Other sizes may have proportionate defects. Season checks and checks extending not over one-eighth the length of the piece admissible.

TANK STOCK.

May be either Edge or Flat Grain. Must be water tight the full length of the piece, unless it is for cutting stock. Small knots, or pitch pockets which do not go through the piece, not to be considered defects. Edges to be practically clear or to contain no defects that will prevent a water-tight joint when worked.

2 inch stock to contain practically no sap. 3 inch stock, when 12 inches wide, to allow 3 inches of sap on both edges of face side, not to extend over ¾ of an inch through the piece.

SELECTED COMMON FIR.

2x4 to 2x12 and 3x4 to 4x6 shall be square edged. Will admit any quantity of sound knots, not over 1 inch in diameter, or small pitch pockets not over 4 inches in length. Sizes larger than 4x6 will admit sound knots not to exceed 1½ inches in diameter; pitch pockets not to exceed 6 inches in length.

It is understood that this is Selected Common, a grade lower than No. 3 Clear, and not to be confused with it.

WIND MILL TOWER STOCK.

Shall be graded as Selected Common. Shall be S4S or S1S1E, ½ inch scant each way.

TURNED PORCH COLUMNS.

No. 1 Columns to grade 80 per cent Clear; the balance of 20 per cent to admit of the following slight defects: Three small sound knots not over ¾ inch in diameter on the smooth part of the turned shaft, or on the square, or three tight pitch pockets, to be not over 3 inches long, or the equivalent in both knots and pitch pockets. Bright sap shall be no defect. The 5x5 and the 6x6 shall be bored through with not less than 1¾ inch bit.

The 4x4 to be bored through the square ends, at the option of the manufacturer. The Colonial Columns shall be bored through with not less than a 2 inch bit.

FIR CAR MATERIAL.

It is generally understood that car material is sold under special contract between buyer and seller. In the absence of such agreement the following rules shall govern:

Car Lines and End Plates.—Yellow or Red Fir, free from all defects except sound knots and pitch pockets.

Car Decking and Flooring.—Yellow or Red Fir, free from splits, shakes, waney edges or unsound knots. Will admit pitch pockets and sound knots.

Riser Blocks and Deck Beams.—Yellow or Red Fir, free from splits and shakes. Will admit pitch pockets and live knots.

Car Fascia.—Yellow or Red Fir, free from shakes, splits or waney edges. Will admit sound knots or tight pitch pockets.

Car Posts, Braces, Girths, Side and End Rails.—Yellow or Red Fir, free from splits or waney edges. Will admit sound knots and pitch pockets.

Inside Lining for Stock and Box Cars.—Yellow or Red Fir, to be of sound, common lumber. Will admit sound knots and pitch pockets.

Car Purlines for Roofs, Roof Ribs, Ground Moldings, Furring Blocks, Ribs over Door, Fascia, Saddle Blocks, Roof Clamps, Roof Strips, Door Tracks, Base Strips and Ridge Poles.—Yellow or Red Fir, free from splits or waney edges. Will admit sound knots and tight pitch pockets.

Car Roofing.—To be graded the same as T. & G. Flooring.

Car Siding.—To be graded the same as T. & G. Flooring.

Car Sills.—To be of sound Red or Yellow Fir, square edges and straight grain. Will admit pitch pockets and sound knots that do not impair strength of piece.

Car Running Boards and Saddle Boards.—Yellow or Red Fir, free from splits and waney edges. Will admit sound knots and pitch pockets.

Selected Common Car Stock shall be graded according to the rules for Selected Common.

Ties.—Sound Common Lumber.

Stringers.—Shall be sound Common Lumber, free from large unsound knots or knots in clusters, or other defects that will seriously weaken the piece.

FIR FACTORY LUMBER.

Select and Better.—This grade shall consist of all lumber containing more than 80 per cent of clear cuttings of the sizes ordinarily used in the manufacture of doors.

No. 1 Shop.—Shall be 8 inches and wider excepting that 6 inch pieces containing one or more door stiles are admissible. This grade shall contain not less than 50 per cent, nor more than 80 per cent, of clear cutting of sizes ordinarily used in the manufacture of doors.

No. 2 Shop.—Shall be of the same widths as No. 1 Shop, and shall contain not less than 25 per cent nor more than 50 per cent of clear cuttings of sizes ordinarily used in the manufacture of doors.

1 Inch Shop.—There shall be but one grade of 1 inch Shop. Each piece must contain not less than 50 per cent of clear cuttings 6 inch and wider and 3 feet and longer.

Turning Squares.—May contain any defects that will dress or turn off and will also contain defects that will cover with paint, such as sound knots or hard pitch pockets. If surfaced, size shall be reduced ¼ inch for each side dressed.

SPRUCE.

GENERAL INSTRUCTIONS.

Spruce Lumber shall be graded and classified according to the following rules and specifications as to quality, and dressed stock shall conform to the table of standard sizes, except where otherwise expressly stipulated between buyer and seller.

There being but a limited amount of sap wood in Spruce, bright sap in any grade shall not be a defect.

NAMES AND GRADES.

Flooring.—Clear. "A." "B."
Finish.—First and Second Clear. Third Clear. Select.
Ceiling.—Clear. "A." "B."
Partition.—Clear. "A." "B."
Porch Decking.—Clear. "A." "B."
Bevel Siding.—Clear. "A." "B." "C."
Factory Stock.—Select and Better. No. 1 Shop. No. 2 Shop.
Molding Stock.—One grade only.
Turning Squares.—One grade only.
Box Lumber.—No. 1. No. 2. No. 3.

SPRUCE FLOORING.

Clear.—Shall be free from all defects on face.

"A."—Will admit two slight defects in dressing or three close pitch seams not to exceed 2 inches in length.

"B."—Will admit of slight roughness in dressing or four close pitch seams, not to exceed 3 inches in length, or two small sound knots, not to exceed ½ inch in diameter.

FINISH.

First and Second Clear.—Being the highest grade in spruce finish, shall be free from serious defects, and capable of use for finishing work without waste.

May be of any width or length, and if under 10 inches in width, shall be free from defects. If 10 inches or over, will admit slight defects, such as roughness in dressing.

Third Clear.—Will admit of sound knots not over ½ inch in diameter, slight roughness in dressings, small close pitch seams, or other minor defects. In widths under 12 inches there shall not be more than three of said defects to any one piece.

Selects.—Will admit of sound knots up to 1 inch in diameter, roughness in dressing, close pitch seams not over 4 inches long, or other proportionate defects. In widths 12 inches or less there shall not be more than four of the said defects to any one piece.

CEILING.

"Clear."—Shall be practically free from all face defects.

"A."—Will admit of two slight dressing defects, or close pitch seams not to exceed a combined length of 6 inches.

"B."—Will admit slight roughness in dressing or close pitch seams not to exceed a combined length of 12 inches, or two sound knots not exceeding ½ inch in diameter.

PARTITION.

Shall be graded same as Ceiling, one face side, with the reverse side not more than one grade lower.

PORCH DECKING.

Shall be graded same as Flooring.

BEVEL SIDING.

Clear.—Shall be practically free from defects, will admit of very slight defects on thin edge, which will cover when laid.

"A."—Will admit of slight defects in dressing, or two close pitch seams not over 2 inches in length, or other minor defects, but each piece shall be suitable for use the full length without waste, containing no defects that will not cover with paint, making a smooth surface.

"B."—Will admit of knots up to ½ inch in diameter, small pitch pockets, roughness in dressing or other recognized defects, not to exceed four of any of the said defects, or their equivalent in any one piece.

"C."—Will admit all Siding below a "B" grade, and may contain any of the recognized defects, provided any piece can be used for the purposes intended, with a waste not exceeding 15 per cent.

FACTORY LUMBER.

Grades as described under this head are valued for cutting up qualities only, and should not be confounded either in quality or value with grades outlined for yard purposes.

Factory lumber of all kinds shall be graded for the percentage of clear door cuttings obtainable.

Factory lumber shall be 8 inches and wider, and 8 to 20 feet long.

Selects and Better.—This grade shall consist of all lumber containing more than 80 per cent of clear cuttings of the size ordinarily used in the manufacture of doors.

No. 1 Shop.—Shall be 8 inches and wider, excepting that 6 inch pieces containing one or more stiles are admissible.

This grade shall contain not less than 50 per cent, nor more than 80 per cent, Clear Cuttings of the sizes ordinarily used in the manufacture of doors.

No. 2 Shop.—Shall be of same widths as No. 1, and shall contain not less than 25 per cent, or more than 50 per cent, Clear Cuttings, of sizes ordinarily used in the manufacture of doors.

Inch Shop Common.—There shall be but one grade of inch Shop Common. Each piece must contain not less than 50 per cent of cuttings 6 inches and wider, 3 feet and longer.

MOLDING STOCK.

Shall consist of lumber 10 to 18 feet in length, suitable for ripping molding strips from 1 inch to 6 inches wide. May contain defects, such as pitch seams and splits, running lengthwise of the piece, or other recognized defects.

This grade shall contain not less than 60 per cent of rippings, running 1 inch and wider, 10 feet and longer, 25 per cent of which should average 3 inches and wider, and 80 per cent to be 12 feet and longer.

TURNING SQUARES.

No. 1 Turning Squares.—May contain any defects that will dress or turn off, may also contain defects that will cover with paint, such as sound knots, or hard pitch seams. If surfaced, the size shall be reduced ¼ inch for each side dressed.

BOX LUMBER.

The value and grade of this lumber is determined from its adaptability for the manufacture of ordinary packing boxes. Ordinary sizes being defined as boxes not over 20 inches in length, nor more than 15 inches in width. Wide boards, or those of special widths, will admit more defects than narrow or random widths. It is not intended that boxes shall be clear, and defects that do not impair the strength or the usefulness of ordinary boxes are not considered, except that if the cuttings are of better quality, a smaller percentage will be accepted in each grade.

There shall be three recognized grades of box lumber, i. e., No. 1, No. 2 and No. 3.

No. 1.—Shall be generally sound, and contain from 75 to 90 per cent of cuttings suitable for boxes of ordinary size and quality, as referred to above. In computing percentages, cuttings of assorted sizes shall be used. Assorted sizes to be defined as pieces running in widths from 6 inches to 12 inches, and in lengths 12 inches to 20 inches.

No. 2.—Generally similar in character to No. 1, containing from 60 to 75 per cent of box cuttings.

No. 3.—Shall consist of all lumber below a grade of No. 2, and shall contain 40 to 60 per cent of box cuttings.

RED CEDAR.

NAMES AND GRADES.

Bevel Siding.—Clear. "A." "B."
Ceiling.—No. 1. No. 2. No. 3.
Finish.—No. 1. No. 2. No. 3.
Corrugated Decking.—No. 2 and Better.
Flooring.—No. 1. No. 2. No. 3.

RED CEDAR BEVEL SIDING.

Clear.—4 or 6 inch. Must be strictly clear except an occasional strip of white sap not over ½ inch in width on thin edge. Grain of all grades will be as lumber runs.

"**A.**"—4 or 6 inch. The following defects will be allowed, but only two in any one piece: 1½ inch sap on thin edge, ½ inch sap on thick edge. Slight roughness in dressing, or equivalent defects.

"**B.**"—4 or 6 inch. All Bevel Siding that falls below the requirements of No. 2 and otherwise comes within the following rules will be in this grade. Roughness in dressing, sap full width of face.

It is generally understood that this grade will admit such other defects as will not impair its utility for cheap Siding. Defects that can be cut out at a loss not to exceed 20 per cent of the board will be allowed.

RED CEDAR CEILING.

To be graded the same as Fir Ceiling.

RED CEDAR FINISH.

No. 1.—4 or 6 inch. Must be strictly clear both sides, 8 inch must be clear on face side excepting 1 inch sap or one small knot on reverse side; 10 and 12 inch must be strictly clear on face side, except 1 inch sap on face side or two small knots on reverse side; 14 inch and wider proportionately more defects.

No. 2.—4 to 8 inch. Allows the equivalent of 1 inch sap or two small knots; 10 and 12 inch allow equivalent of 2 inch sap or four small knots; 14 inch and wider allows proportionately more defects.

RED CEDAR CORRUGATED DECKING.

No. 2 and Better.—Must be graded same as Fir Ceiling.

RED CEDAR FLOORING.

To be graded same as Fir Slash Grain Flooring.

HEMLOCK.

In a general way the rules for grading Fir and Spruce lumber are applied to Hemlock.

REDWOOD MANUFACTURERS' ASSOCIATION.

The redwood lumber manufacturers of Humboldt, Del Norte, and Mendocino counties, Cal., have for the past twenty-five years been associated in a business way under the name of the Redwood Manufacturers' Association. Grading rules for redwood have been in use for about the same length of time, the revised rules given below being adopted in 1900.

The present annual cut of redwood lumber in these three counties is about 375,000,000 feet.

CLEAR REDWOOD.

Shall be good and sound, well manufactured, free from knots, shakes, or splits, with the exception of season checks not to exceed 4 inches in length. Will allow reasonable amount of birdseye, and a fair proportion in each shipment may contain pin knots and small sound knots showing on one face only, and sap not exceeding 4 per cent of areas of all the surfaces and slight variation in manufacture.

SURFACED CLEAR.

Shall be well manufactured and worked smoothly to uniform thickness. Will admit of slight roughness or variation in milling and defects mentioned under grade of Clear.

SAP CLEAR.

Shall conform generally to the grade of Clear, except that it may contain sap in excess of 4 per cent of the area of the surfaces. Will allow discoloration of sap.

COMMON.

No. 1 shall consist of lengths 12 feet and longer (except where otherwise specified) of sound lumber and free from such shakes, large or loose knots, or other defects that would materially impair its usefulness. Will allow slight variation in width and thickness. Sap not to exceed four per cent of the area of all the surfaces.

No. 2 shall consist of lengths 12 feet and longer (except where otherwise specified), free from splits extending more than one-sixth of its length. Will allow knots (sound or unsound), sap, shakes, and other defects which render it unfit for good, substantial construction purposes, but suitable for an inferior class of work.

STRIPS (1 × 3, 4, AND 6 INCHES).

Shall conform to above rules, except that lengths shall be 10 feet and longer.

COMMON BOARDS.

No. 1 (8 inches and wider) shall be well sawn, 10 feet and longer, free from shakes and splits, admitting any number of sound knots less than 2½ inches in diameter, and one knot, black or red, 2½ inches in diameter in each five superficial feet. Will allow slight variation in width and thickness, and sap not to exceed four per cent of the area of all surfaces.

No. 2 will allow sap, loose and rotten knots, shakes, and other recognized defects which render it unfit for good, substantial construction purposes, but suitable for an inferior class of work. Also splits not extending over one-fourth the length of the piece.

STANDARD GRADE, RUSTIC STOCK.

Will allow three or four sound knots 1¼ inches in diameter, one or two sound knots between 1¼ and 2 inches in diameter, sap with small knots, poor machining which would make it unfit for Clear.

Grain of all grades shall be as the lumber runs.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION.

Organized May 10, 1905, at New Orleans, La.

There were two cypress organizations prior to the present association—the Southern Cypress Selling Company (Limited) and the Southern Cypress Lumber Association. The two associations were independent of each other, although both occupied the same offices and elected the same secretary. The first, however, was a close corporation, admitting only those manufacturers who could furnish all the stock it might call for, while the second was open to all manufacturers of cypress.

On November 23, 1905, the present association published a revision of cypress grades. It inaugurated uniform inspection June 25, 1906.

[Southern Cypress Manufacturers' Association. Standard Grades and Classifications of Cypress Lumber and Shingles. Adopted at Atlantic Beach, Fla., July 18, 1906.]

[Copyrighted, 1906, by the Southern Cypress Manufacturers' Association.]

GENERAL INSTRUCTIONS.

The aim of these grading rules is to harmonize the natural differences which exist in the timber sawed at the various mills in this association, in an effort to make the shipments of lumber from the different mills uniform and of equal intrinsic value, grade for grade.

To that end, cypress lumber shall be graded according to the following rules and specifications, bearing in mind that as no arbitrary set of rules and specifications can be maintained in every case, much must be left to the common sense and best judgment of the inspector.

Lumber shall be manufactured and shipped uniform and even in standard lengths and thicknesses.

Tank, first and second and worked partition shall be graded from the poorer side.

Select lumber, flooring, ceiling, bevel siding, and finishing shall be graded from the better or finished side, but the reverse side shall in no case be more than one grade lower.

All lumber shall be tallied surface or face measure, the tally counted up, and the one-quarter or one-half added to the total where the lumber is one and one-quarter or one and one-half inches thick, and two inches and thicker to be multiplied by the thickness.

In the measurement of all lumber, fractions exactly on the one-half foot are to be given alternately to the buyer and seller; the fractions below the one-half foot are to be dropped, and all fractions above the one-half foot are to be counted to the next higher figure on the board rule.

Recognized defects in cypress are knots, knot holes, shake, splits, wane, wormholes, stained sap, and peck.

STANDARD DEFECTS.

A standard knot is sound and not to exceed 1¼ inches in diameter.

A small sound knot is one not exceeding ¾ inch in diameter.

Two small knots not to exceed in extent or damage one 1¼-inch knot.

One straight split not to exceed in length the width of the piece.

Worm, grub, knot, and rafting pin holes not exceeding in damage one 1¼-inch knot.

Ordinary season checks shall not be considered a defect in any grade.

Bright sap is not a defect in select or below.

Pinworm holes, sound knots, and stained sap shall not be considered a defect in No. 1 common or below.

STANDARD LENGTHS.

Tank stock, shop and No. 1 common shall be 8 feet and longer.
1st and 2nd and select shall be 10 to 20 feet.
Finish, flooring, ceiling, partition, bevel and drop siding shall be 10 to 20 feet.
Moldings of all sizes 8 to 20 feet.
No. 2 common 6 feet and longer.
Cull or peck 4 feet and longer.

STANDARD THICKNESSES.

All lumber shipped in the rough shall be the even thickness.
4/4 lumber S 1 S or S 2 S shall be $\frac{13}{16}$ inches thick.
5/4 lumber S 1 S or S 2 S shall be $1\frac{1}{8}$ inches thick.
6/4 lumber S 1 S or S 2 S shall be $1\frac{3}{8}$ inches thick.
8/4 lumber S 1 S or S 2 S shall be $1\frac{3}{4}$ inches thick.
10/4 lumber S 1 S or S 2 S shall be $2\frac{1}{4}$ inches thick.
12/4 lumber S 1 S or S 2 S shall be $2\frac{3}{4}$ inches thick.
All lumber S 1 E takes off $\frac{3}{8}$ inch, S 2 E $\frac{1}{2}$ inch.
All flooring shall be S 2 S and C. M.
4/4 flooring shall be $\frac{13}{16}$ inches by $2\frac{1}{4}$ inches, $3\frac{1}{4}$ inches, $4\frac{1}{4}$ inches, $5\frac{1}{4}$ inches face.
5/4 flooring shall be $1\frac{3}{32}$, 6/4 shall be $1\frac{11}{32}$, by same widths as 4/4.
3/8 ceiling shall be worked $\frac{5}{16}$ inches, S 1 S only.
1/2 ceiling shall be worked $\frac{7}{16}$ inches, S 1 S only.
5/8 ceiling shall be worked $\frac{9}{16}$ inches, S 1 S only.
3/4 ceiling shall be worked $\frac{11}{16}$ inches, S 1 S only.
All widths of ceiling to be the same as flooring.
Drop siding shall be worked same as flooring.
Bevel siding shall be worked $\frac{1}{2}$ inch less in width than the rough strip measure.

TANK STOCK.

This grade shall be random widths, and will not be furnished in specified widths, and shall be graded from the poorer side.

This grade shall be 5 inches and wider, $1\frac{1}{2}$ to 4 inches thick, and 8 feet and over in length. Pieces up to 7 inches shall be free from sap. Pieces wider than 7 inches may have 1 inch of sound sap on one edge, not to exceed half the length and half the thickness of the piece. In all widths sound knots or slight season checks that do not impair usefulness for tank purposes may be admitted.

FIRST AND SECOND CLEAR.

This grade shall be random widths, and will not be furnished in specified widths, and shall be graded from the poorer side.

This grade shall be 8 inches and wider, 1 to 4 inches thick, and 10 feet and over in length. Pieces 8 to 10 inches may have 1 inch of bright sap on each edge, or its equivalent on one or both edges, otherwise, they must be clear. Pieces 10 inches and under 12 inches may have $1\frac{1}{2}$ inches of bright sap on each edge or 3 inches on one edge, and may have one standard knot. Pieces 12 inches wide may have 2 inches of bright sap on each edge, or 4 inches on one edge and may have one standard knot; or, in lieu of sap, may have two standard knots or their equivalent. Pieces wider than 12 inches may admit of defects as specified above in proportion as width increases. Pieces 10 inches and wider may admit of one end split, which shall not exceed in length the width of the piece. Slight season checks allowed in this grade. Pieces free from other defects may have bright sap across one face at one end, but this sap shall not exceed in length one-tenth of the length of the piece.

SELECTS.

This grade shall be random widths, and will not be furnished in specified widths, and shall be graded from the better side, but the reverse side shall not be more than one grade lower.

This grade shall be 7 inches and wider, but will not be furnished wider than 12 inches; shall be 1 to 3 inches thick, 10 feet and longer. Pieces 10 inches and under in width shall admit two standard knots and an additional standard knot for every 2 inches in width over 10 inches. Pieces free from other defects, 10 inches and over in width, to admit pinworm holes on one edge one-tenth the width of the piece. Bright sap is not a defect in this grade. Season checks are not a defect in this grade. Slight wane on pieces 10 inches and over in width is allowed on one edge not over 3 feet in length. When no other defect appears, slight amount of stained sap may be allowed. Pieces 10 inches and wider may admit of one end split which shall not exceed in length the width of the piece.

SHOP.

This grade shall be random widths, and will not be furnished in specified widths; shall be 5 inches and wider, 1 to 3 inches thick, 8 feet and longer, and shall be graded No. 1 and No. 2 shop.

NO. 1 SHOP.

In this grade the 1 inch shall cut for shop use 60 per cent or better of the following cuts and rips: Five inches wide, or wider, by 3 feet long, or longer; and 9½ inches wide, or wider, by 18 inches long, or longer; and strips 2 inches wide, or wider, ripped the entire length of the piece. In this grade 1¼ inches and thicker shall cut for shop use 60 per cent or better of the following cuts and rips: Five and one-fourth inches wide, or wider by 3 feet long, or longer; 9 inches wide, or wider, by 2 feet 4 inches long or longer; and strips 2 inches wide, or wider, ripped the entire length of the piece. In the above cuttings bright sap shall be admitted.

NO. 2 SHOP.

This grade shall cut for shop use 40 to 60 per cent of the same size, cuts, and rips as the corresponding thicknesses in No. 1 shop. In the above cuttings bright sap shall be admitted.

SELECTED COMMON TANK STOCK.

This grade shall be 4 inches wide, or wider, 1¼ and 2 inches thick, 8 feet and over in length. Sound sap no defect in this grade, but must be free from wane edge, unsound knots or other defects that extend through the thickness of the piece, and must be square edged to work the full length of the piece.

NO. 1 COMMON.

This grade may be either random or specified widths, shall be 3 inches and wider, 1 inch and thicker, 8 feet and over in length, admitting sap, bright or stained, shake, knots, pinworm holes, and a small amount of peck on one side and one edge, which defects, however, shall not be sufficient to seriously impair the strength or prevent the use of each piece for "common" purposes in its full length and full width.

NO. 2 COMMON.

This grade may be 1 x 6, otherwise random widths, 4 inches and wider, 1 to 2 inches thick, 6 feet and over in length, admitting all the defects allowed in No. 1 common grade and in addition will admit peck on both sides, loose knots and knot holes; however, above defects shall not be sufficient to cause more than one-third waste in this grade when used for ordinary boxing, crating, and sheathing purposes.

The 1 x 6 in this grade shall have sufficient strength to permit its use as low-grade fencing.

CULL OR PECK.

This grade may be random or specified widths, 3 inches and wider, 1 to 4 inches thick, 4 feet and over in length. Shall admit all pieces below the grade of No. 2 common, and shall also admit the product of that part of the log known as "pecky;" however, each piece shall have sufficient strength and nailing surface to permit its use as a low-grade boxing, crating, sheathing, and foundation material.

FINISHING.

Shall be specified widths, 4 inches and wider, 1 to 2 inches thick, 10 feet and over long, and shall be graded from the better side A, B, and C, but the reverse side shall not be more than one grade lower. All grades of finish, rough or S 1 S or S 2 S may vary ¼ inch from the width specified.

"A" Finish.—Pieces 4 inches and 5 inches wide shall be clear of sap, knots, and other defects. Pieces 6 inches wide may have 1 inch of bright sap, or in lieu of sap one small sound knot. Pieces 7 inches and 8 inches wide may have 2 inches of bright sap, or in lieu of sap one small sound knot. Pieces 9 inches and 10 inches wide may have 3 inches of bright sap, or in lieu of sap two small sound knots, or 1½ inches of bright sap and one small sound knot. Pieces 12 inches wide may have 4 inches of bright sap, or in lieu of sap one standard knot, or two small sound knots, or 2 inches of bright sap and one small sound knot. Pieces 14 inches or wider may have more defects in proportion as the width increases.

"B" Finish.—Pieces 4 inches, 5 inches, and 6 inches wide may have 2 inches of bright sap and one or two small sound knots, or in lieu of knots may have all bright sap. Pieces 7 inches and 8 inches wide may have 3 inches of bright sap and two small sound knots, or in lieu of knots may have all bright sap. Pieces 9 inches and 10 inches wide may have 4 inches of bright sap and one standard knot or three small sound knots, or in lieu of knots may have all bright sap. Pieces 12 inches wide may have 6 inches of bright sap and one standard or four small sound knots, or in lieu of knots may have all bright sap. This grade will not be furnished wider than 12 inches.

"C" (or Shop) Finish.—All widths in this grade may have knots or other defects that can be removed with waste not to exceed one-tenth of the length of the piece, and may have a small amount of stained sap or three pinworm holes in addition to above 10 per cent of wastage.

"D" (or Select Common) Finish.—This grade will not be furnished wider than 10." All widths will admit sound knots, stained sap, pin worms, slight shakes, and other defects; but none that will prevent the use of each piece in its full width and length for common finishing purposes.

SIDING.

Siding shall be 4 and 6 inches in width, 10 to 20 feet in length, and graded from the finished side, A, B, C, and D.

"A" Siding.—May have 1 inch of bright sap on thin edge, and may contain one small sound knot.

"B" Siding.—May have any amount of bright sap, or if not all bright sap, may have three sound knots, or any other defect in wane on the thin edge, shake, split or pin worm holes not exceeding in damage the three small sound knots above described.

"C" Siding.—May have one to five knots, the whole not aggregating over 3" in diameter, or knots, splits or other defects that can be removed in two cuts with waste not exceeding 12" in length, or may have small amount of stained sap and pin worm holes not exceeding in damage the five small knots above described.

"D" Siding.—May have stained sap and pinworm holes, or may have other defects that will not cause a waste to exceed one-third the piece.

FLOORING AND CEILING.

Shall be specified widths, 10 to 20 feet in length and graded from the finished side; or if both sides are finished, it shall be graded from the better side, A, B, C, and D.

"**A.**"—May have 1 inch bright sap on one edge, may contain one small sound knot or may have bright sap one-fourth its width on one end for not exceeding two feet from end.

"**B.**"—May have one-half of its face bright sap if otherwise clear; or in lieu of sap may contain two small sound knots, or may have a split not to exceed 9 inches at one end.

"**C.**"—May have all bright sap, or may have one to five knots, the whole not aggregating over 3 inches; or knots or other defects that can be removed in two cuts with waste not exceeding 12 inches in length; or may have three pinworm holes; or may have check or split at one end, not to exceed 12 inches in length.

"**D.**"—May have stained sap and pinworm holes, or may have unsound knots or other defects that will not cause a waste to exceed one-third the piece.

PARTITION.

Shall be same widths and lengths as flooring and ceiling, but shall be graded from the poorer side, A, B, C, and D, same grading to apply as in flooring and ceiling.

PICKETS.

Shall be graded No. 1 and No. 2.

No. 1.—Shall be well manufactured, bright sap no defect and may contain one small sound knot.

No. 2.—Shall admit stained sap, sound knots, pinworm holes, slight shake, and pickets thrown out of the No. 1 grade because of poor manufacture.

TURNING SQUARES.

Sizes, 4 x 4 to 8 x 8. Lengths, 8 feet and longer.

Will admit one-quarter their size in sap on one corner, showing on two faces, and may contain one to five small sound knots.

SHINGLES.

Bests.—A dimension shingle, 4, 5, and 6 inches in width, 16 inches long, each width packed separately, 5 butts to measure 2 inches; to be all heart and free of shake, knots, and other defects.

Primes.—A dimension shingle, 4, 5, and 6 inches in width, 16 inches long, each width packed separately, 5 butts to measure 2 inches; admitting tight knots and sap, but free of shake and other defects, but with no knots within 8 inches of the butts.

This grade may contain shingles clipped two-thirds of the width and one-eighth of the length on the point.

Star A Star.—A random-width shingle 3 inches and wider, 14 inches to 16 inches long, otherwise the same as primes.

Economy.—Dimensions 4, 5, and 6 inches, each width separately bunched, admitting sap and sound knots, may have slight peck 5 inches from butts; imperfections on points no objection and admitting 14-inch shingles.

Clippers.—All shingles below the above grades which are sound for 5 inches from the butts, wormholes, and slight peck excepted, random widths 2½ inches and wider.

The count of our manufacture of shingles, of all grades, is based on 4,000 linear inches in width, making 1,000 standard shingles. Consequently there would be only 667 6-inch shingles packed and counted as 1,000 standard shingles, 5-inch dimension being counted in like proportion.

CLASSIFICATION AND INSPECTION FOR BAY POPLAR (TUPELO) LUMBER.

[Adopted at New Orleans, La., June 28, 1906. Copyrighted, 1906, by the Southern Cypress Manufacturers' Association.]

GENERAL EXPLANATIONS.

All tapering boards shall be measured at one-third the distance from the narrow end.

Lumber shall be of full and even thickness.

Scant sawed lumber shall be reduced to the next standard thickness.

The standard lengths are four to 16 feet.

The standard thicknesses are ⅜ inch, ½ inch, ⅝ inch, ¾ inch, 1 inch, 1¼ inch, 1½ inch, 2 inch, 2½ inch, 3 and 4 inch, when dry.

All lumber less than one inch in thickness shall be measured face measure.

Bright sap in bay poplar is not to be considered a defect, and sap shall be considered bright which will show bright when planed once.

Ordinary season checks are not to be considered defects.

STANDARD DEFECTS.

One knot 1¼ inches in diameter. Two knots not exceeding in extent one standard knot.

Wormholes, grub holes, or rafting pin holes not exceeding in extent or damage one standard knot.

One bark edge or wane not to exceed one inch in the aggregate, running not to exceed one-third the length of the board and showing on one edge only, said wane to be measured.

Splits that do not diverge more than one inch for each foot in length are straight splits.

Wide pieces of lumber that would take two or three standard defects may have one large defect equal in damage to three standard defects.

STANDARD GRADES.

All standard grades of bay poplar shall be classified for the purpose of inspection, as follows.

Box boards, first and second clear, No. 1 common, No. 2 common.

BOX BOARDS.

Lengths, 12, 14 and 16 feet.

Widths, 8 to 12 inches, and 13 to 17 inches.

Thickness, one inch.

In Box Boards bright sap or slightly discolored sap that will dress up sound, not necessarily bright but not black, admitted.

One sound knot not to exceed one inch in diameter, showing on one side only, will be admitted in this grade.

Splits in 12 foot may be fifteen inches long, or any defect that will cut off leaving the board 10 feet 6 inches long. Fourteen foot is used for making one side 10 feet 6 inches, and one end 3 feet 6 inches, so a split is a serious defect in this length; but ten per cent of all 14 foot in a given lot may have one split not to exceed 12 inches in length. 16 foot may have one standard knot, showing through the piece, provided it will cut two pieces same as a 14 foot board.

FIRST AND SECOND CLEAR.

Shall be six inches and over in width, 10, 12, 14 and 16 feet in length; pieces six inches to eight inches wide shall be clear. Pieces nine inches to 10 inches wide shall admit one standard defect or its equivalent; pieces 11 inches to 12 inches wide shall admit two standard defects or their equivalent; for each additional two inches in width over 12 inches, an additional standard defect or its equivalent shall be admitted. In this grade straight splits shall be admitted which do not exceed in length the width of the piece in inches. Slightly discolored sap which will dress up sound, not necessarily bright, but not black, shall be admitted.

NO. 1 COMMON.

Lengths—Six to 20 feet, not to exceed 10 per cent of six-foot lengths..

Widths—Four inches and over.

Four and five inches will admit one standard knot or equal defects.

Six to 11 inches wide, eight and 10 feet long, must work two-thirds clear face in not over two pieces.

Twelve inches and over wide, eight and 10 feet long, must work two-thirds clear face in not over three pieces.

Six to 11 inches wide, 12 feet and over long, must work two-thirds clear face in not over three pieces.

Twelve inches and over wide, 12 feet and over long, must work two-thirds clear face in not over four pieces.

No piece or cutting to be considered which is less than four inches wide and three feet long, but as the width increases the length may decrease, but the shortest cutting to be considered must be 18 inches long and not less than eight inches wide. Two-thirds of this grade must be six inches and over wide. Pieces six feet long must be clear up to eight inches wide; over eight inches wide will admit one standard defect.

NO. 2 COMMON.

Shall be three inches and over in width, six feet and over in length, and shall admit all pieces below the grade of No. 1 common which will work at least one-half without waste for ordinary box-making purposes. Stain, wormholes, warped, and woolly pieces belong in this grade.

CAR SIDING STRIPS.

Shall be eight or 16 feet long, one inch thick and six inches wide, and shall have one clear face.

BEVEL SIDING.

A *grade*. Shall be absolutely clear face, except small defects within one inch of the thin edge.

B *grade*. Shall admit slightly discolored sap, or three sound knots, not to exceed three-quarters of an inch in diameter.

C *grade*. Shall comprise stock not up to grade of B, admitting unsound knots, splits, etc., provided three-fourths of the piece will work merchantable.

DROP SIDING.

A *grade*. Shall have one clear face and be otherwise sound.

B *grade*. Shall admit of discolored sap, and in six-inch will admit of two standard knots, in eight-inch four standard knots, or their equivalent in smaller knots.

FLOORING AND CEILING.

A *grade*. Shall have one clear face and be otherwise sound.

B *grade*. Shall admit of one standard knot or three small knots and slight sap stains.

C *grade*. Shall comprise stock not up to grade of B, provided three-fourths of the piece will work merchantable.

Four and six-inch flooring and ceiling shall be worked 3¼ and 5¼ inch face.

PARTITION.

A *grade*. Must be clear of knots on both sides.

B *grade*. Will be graded the same as B flooring on both sides.

WAINSCOTING.

Shall be graded the same as flooring and ceiling.

CASING, BASE, AND MOLDINGS.

Shall be based on Universal Molding Book.

STANDARD FINISHED SIZES OF DRESSED LUMBER.

One inch stock surfaces one or two sides to 13/16 inch.
Lumber surfaced one edge takes off ⅜ inch; surfaced two edges takes off ½ inch.
Flooring or ceiling from 1x3 inch finishes 13/16x2¼ inch face.
Flooring or ceiling from 1x4 inch finishes 13/16x3¼ inch face.
Flooring or ceiling from 1x6 inch finishes 13/16x5¼ inch face.
Drop siding D & M finishes 13/16 inch with same face as one-inch flooring.
Four-inch and six-inch ceiling will have two beads.
All flooring is S 2 S and center matched.
Four-inch bevel siding is made from one-inch stock S 4 S to 13/16x3½ inch and resawed.
Six-inch bevel siding is made from one-inch stock S 4 S to 13/16x5½ inch and resawed.
All dressed lumber will be shipped standard sizes unless specified otherwise.

WESTERN PINE MANUFACTURERS' ASSOCIATION.

Organized February 11, 1903.

The territory covered by the association is divided into three districts: (1) Eastern Washington and northern Idaho; (2) eastern Oregon; (3) western Montana. This association has adopted the grading rules of the Flathead Lumbermen's Board of Trade on Larch.

On white and western pine, the association uses practically the same rules as the Northern Pine Manufacturers' Association, with such slight modifications as are necessary to cover the special features of the pine found in this region.

In 1904 the association established a bureau of grades, and early in 1905 an inspector was employed to travel from section to section and instruct the inspectors at the mills. Since that time the inspection force has been considerably increased. The output in 1905 was 600,000,000 feet.

YELLOW PINE MANUFACTURERS' ASSOCIATION.

Organized in 1890 as the Southern Lumber Manufacturers' Association, on January 24, 1906, the name of the association was changed to the Yellow Pine Manufacturers' Association. The region covered is practically the entire South, with the exception of the Carolinas and Virginia.

The first action toward grading lumber in the States now covered by the Yellow Pine Manufacturers' Association was taken January 24, 1886, at Texarkana, Ark., when representatives of seventy-five mills met and adopted certain rules for grading their output. In 1888 another meeting was held, and these rules were reaffirmed. The

Southern Lumber Manufacturers' Association first adopted full grading specifications in December, 1890.

January 24, 1906, the association adopted a set of export grades, which, for rough lumber, are those of the Gulf Coast classification, with minor changes; for dressed lumber, those of the Yellow Pine Manufacturers' Association, and for shingles, those of the Southern Cypress Manufacturers' Association.

The Yellow Pine Manufacturers' Association maintains a corps of traveling inspectors whose duty it is to regulate grades at the mills and to settle disputes between manufacturer and purchaser.

The output in 1905 was 4,200,000,000 feet.

INTERIOR RULES OF YELLOW PINE MANUFACTURERS' ASSOCIATION.

[Standard classification, grading and dressing rules for Yellow Pine Lumber. Revised and adopted at New Orleans, La., on January 24, 1906.]

[Copyrighted 1906, by Yellow Pine Manufacturers' Association.]

GENERAL INSTRUCTIONS.

1. **Yellow Pine Lumber** shall be graded and classified according to the following rules and specifications as to quality, and dressed stock shall conform to the subjoined table of standard sizes *except where otherwise expressly stipulated between buyer and seller.*

2. Recognized defects in yellow pine are knots, knot holes, splits (either from seasoning, ring hearts, or rough handling), shake, wane, red heart, pith, rot, rotten streaks, wormholes, pitch streaks, pitch pockets, torn grain, loosened grain, seasoning or kiln checks, and sap stains.

KNOTS.

3. Knots shall be classified as pin, standard, and large, as to size; and round and spike as to form; and as sound, loose, encased, pith, and rotten as to quality.

4. A pin knot is sound and not over ½ inch in diameter.

5. A standard knot is sound and not over 1½ inches in diameter.

6. A large knot is one any size over 1½ inches in diameter.

7. A round knot is oval or circular in form.

8. A spike knot is one sawn in a lengthwise direction.

The mean or average diameter of knots shall be considered in applying and construing the rules.

9. A sound knot is one solid across its face, is as hard as the wood it is in, may be either red or black, and is so fixed by growth or position that it will retain its place in the piece.

10. A loose knot is one not held firmly in place by growth or position.

11. A pith knot is a sound knot with a pith hole not more than ¼ inch in diameter in the center.

12. An encased knot is one surrounded wholly or in part by bark or pitch. Where the encasement is less than ⅛ of an inch in width on both sides, not exceeding one-half the circumference of the knot, it shall be considered a sound knot. (See Sections 9 and 16.)

13. A rotten knot is one not as hard as the wood it is in.

PITCH.

14. Pitch pockets are openings between the grain of the wood containing more or less pitch or bark, and shall be classified as small, standard, and large pitch pockets.

15. A small pitch pocket is one not over ⅛ of an inch wide.

A standard pitch pocket is one not over ⅜ of an inch wide, or 3 inches in length.

A large pitch pocket is one over ⅜ of an inch wide, or over 3 inches in length,

16. A pitch pocket showing on both sides of the piece $\frac{1}{8}$ of an inch or more in width shall be considered the same as a knot hole.

17. A pitch streak is a well-defined accumulation of pitch at one point in the piece, and when not sufficient to develop a well-defined streak, or where fiber between grains is not saturated with pitch, it shall not be considered a defect.

18. A small pitch streak shall be equivalent to not over one-twelfth the width and one-sixth the length of the piece it is in.

A standard pitch streak shall be equivalent to not over one-sixth the width and one-third of the length of the piece it is in.

WANE.

19. Wane is bark, or the lack of wood, from any cause, on edge.

SAP.

20. Bright sap shall not be considered a defect in any of the grades provided for and described in these rules. The restriction or exclusion of bright sap constitutes a special class of material which can only be secured by *special contract.*

21. Sap stain shall not be considered a defect in any of the grades of Common Lumber.

MISCELLANEOUS.

22. Firm red heart shall not be considered a defect in any of the grades of Common Lumber.

23. Defects in rough stock caused by improper manufacture and drying will reduce grade, unless they can be removed in dressing such stock to standard sizes.

24. All stock, except Dimension, shall be inspected on the face side to determine the grade. Stock surfaced one side, the dressed surface shall be considered the face side. Stock rough or dressed two sides, the best side shall be considered the face; but the reverse side of all such stock should not be more than one grade lower.

25. Imperfect manufacture in dressed stock, such as torn grain, loosened grain, wane, broken knots, mismatched, insufficient tongue or groove on Flooring, Ceiling, Drop Siding, etc., shall be considered defects, and will reduce grade according as they are slight or serious in their effects on the use of the stock.

26. Pieces of Flooring, Drop Siding or Partition with $\frac{3}{16}$-inch or more of tongue and pieces of Ceiling with $\frac{1}{8}$-inch or more of tongue will be admitted in any grade. Pieces of Flooring, having not less than $\frac{1}{16}$-inch tongue will be admitted in E. Pieces of Drop Siding, Ceiling or Partition, having not less than $\frac{1}{16}$-inch tongue will be admitted in No. 2 Common.

27. In all grades of D. and better, Flooring, and No. 1 Common and better, Ceiling, Drop Siding, etc., wane on the reverse side, not exceeding one-third the width and one-sixth the length of any piece, provided the wane does not extend into the tongue, nor over one-half the thickness below the groove, is admissible.

28. Chipped grain consists in a part of the surface being chipped or broken out in small particles below the line of the cut, and as usually found should not be classed as torn grain and shall not be considered a defect.

29. Torn grain consists in a part of the wood being torn out in dressing. It occurs around knots and curly places and is of four distinct characters—slight, medium, heavy, and deep.

Slight torn grain should not exceed $\frac{1}{32}$ of an inch in depth; medium, $\frac{1}{16}$ of an inch; and heavy, $\frac{1}{8}$ of an inch. Any torn grain heavier than $\frac{1}{8}$ of an inch shall be termed "deep."

30. Loosened grain consists in a point of one grain being torn loose from the next grain. It occurs on the heart side of the piece, and is a serious defect, especially in Flooring.

31. The grade of all regular stock shall be determined by the number, character, and position of the defects visible in any piece. The enumerated defects herein described admissible in any grade are intended to be descriptive of the coarsest pieces such grades may contain, but the average quality of the grade should be about midway between the highest and lowest pieces allowed in the grade.

32. Lumber and timber sawed for specific purposes must be inspected with a view to its adaptability for the use intended. Material not conforming to standard sizes, for agricultural implement companies, wagon companies, car manufacturing companies, railway companies, etc., shall be governed by special contract and inspection.

33. The standard lengths are multiples of two feet, ten to twenty-four feet, inclusive, for boards, fencing, dimension, joists, and timbers, and multiples of one foot, ten to twenty feet inclusive for finishing, flooring, ceiling, siding, partition, casing, base window and door jambs--except as hereinafter specified. Longer or shorter lengths than those herein specified are special. Odd and fractional lengths shall be counted as of the next higher even length.

34. The standard of widths for lumber S 1 S or S 2 S or rough, excluding Dimension, shall be multiples of 1 inch—3 inches and up in width.

35. On stock width shipments of No. 1 Common and better lumber, either rough or dressed one or two sides, no piece should be counted as of standard width that is more than ¼-inch scant on 8-inch and under; ⅜-inch scant on 9 and 10-inch; or ½-inch scant on 11 and 12-inch or wider. Such pieces should be measured as of the next lower standard of width and not reduced in grade. (For widths of No. 2 Boards and Fencing see page 120.) (For Dimension see Secs. 84 and 91.)

36. Yellow Pine of a better grade than No. 1 Common, up to four inches in width shall be classified as to grain as Edge Grain and Flat Grain.

Edge Grain has been variously designated as rift sawn, vertical grain, quarter sawn, all being commercially synonymous terms. Edge Grain stock is especially desirable for Flooring and admits no piece in which the angle of the grain exceeds 45 degrees from vertical at any point, thus excluding all pieces that will sliver or shell from wear. Such as will not meet these requirements shall be known as "Flat Grain."

37. All dressed stock shall be measured and sold strip count, viz., full size of rough material necessarily used in its manufacture.

All sizes 1 inch or less in thickness shall be counted as 1 inch thick.

38. In standard manufacture of Factory Flooring, Decking or thick dressed and matched stock, and stock grooved for splines, and for Shiplap, the finished width shall be ½-inch less over all than the count or measured width of the rough material used in manufacture, and the tongue and lap shall be measured to determine the finished width, and face measure shall no longer be standard.

39. Equivalent means equal, and in construing and applying these rules, the defects allowed, whether specified or not, are understood to be equivalent in damaging effect to those mentioned applying to stock under consideration.

No arbitrary rules for the inspection of lumber can be maintained with satisfaction. The variations from any given rule are numerous and suggested by practical common sense, so nothing more definite than the general features of different grades should be attempted by rules of inspection. The following therefore are submitted as the general characteristics of the different grades.

Lumber must be accepted on grade in the form in which it was shipped. Any subsequent change in manufacture or mill work will prohibit an inspection for the adjustment of claims, except with the consent of all parties interested.

40. The foregoing general observations shall apply to and govern the application of the following rules:

DRESSED YELLOW PINE FINISHING.

Sizes.—Finishing shall be dressed to the following: 1-inch S 1 S or 2 S to $\frac{13}{16}$, 1¼-inch S 1 S or 2 S to $1\frac{1}{16}$, 1½-inch S 1 S or 2 S to $1\frac{5}{16}$, 2-inch S 1 S or 2 S to 1¾ inches. 2-inch S 4 S ¼" off each edge.

Widths.—On stock width shipments of all Finishing Lumber, either rough or dressed one or two sides, no piece should be counted as standard width that is more than ¼-inch scant on 8-inch and under; ⅜-inch scant on 9 or 10 inch; or ½-inch scant on 11 or 12 inch or wider.

Such pieces should be measured as of the next lower standard of width and not reduced in grade.

Lengths.—Standard lengths are 10 to 20 feet and in shipments of mixed lengths, 5 per cent of 8 or 9 foot in grade of C and better shall be admitted.

The above per cent is allowed in all shipments of mixed lengths, even though the number of feet of each length in such shipment be specifically stated.

Grades.—A, B and C.

41. **A Finishing.**—Inch, 1¼, 1½ and 2 inch, dressed one or two sides, up to and including 8 inches wide, must show one face practically clear of all defects, 9 or 10 inches wide, in addition to one split not more than 6 inches long, will admit any one of the following defects: One small pitch pocket, one pin knot, pitch streak or sap stain not to exceed the equivalent of 6 square inches. One-third of any shipment of 11, 12, 13 and 14 inch, in addition to one straight split not to exceed in length the width of the piece, will admit any one of the following defects or its equivalent: Three pin knots, one standard knot, three small pitch pockets or one standard pitch pocket, one small pitch streak, small kiln or seasoning checks, one sap stain 1½ inches wide running across the face of the piece.

For each inch above 14 inches in width, one additional defect as allowed in 12-inch stock will be admitted. Pieces otherwise admissible, which have loosened or torn grain on the face side, shall be put in a lower grade.

42. **B Finishing.**—Inch, 1¼, 1½, and 2 inch, dressed one or two sides up to and including 10 inches in width, in addition to one straight split not to exceed in length the width of the piece, will admit any two of the following or their equivalent of combined defects: Slight torn grain, three pin knots, one standard knot, three small pitch pockets, one standard pitch pocket, one standard pitch streak, three sap stains 2 inches wide across the face or sap stain not over 8 inches deep on one end, wane not to exceed 1 inch in width, ¼-inch in depth, and ⅙ the length of the piece, or small kiln or seasoning checks. Eleven inch and wider will admit three of the above defects or their equivalent.

43. **C Finishing.**—Up to and including 10-inch in width will admit, in addition to one split not to exceed in length the width of the piece, any two of the following or their equivalent of combined defects, 25 per cent of sap stain or firm red heart, two standard pitch streaks, medium torn grain in three places in one piece, slight shake or kiln or seasoning checks that do not go through, two standard pitch pockets or six small pitch pockets, two standard knots or six pin knots, wane one inch in width, ½-inch in depth and one-third the length of the piece. Defective dressing will also be allowed that does not prevent its use as finish without waste. For each inch in width above 10-inch one additional defect or its equivalent of combined defects as enumerated above will be allowed.

44. **Special.**—In case both sides are desired Clear, special contract must be made. Defective dressing on the reverse side of Finishing is admissible. (See Section 24.)

FLOORING.

Sizes.—D and better 1x3, 1x4, and 1x6 inches shall be worked to $\frac{13}{16}$x2¼, 3¼, and 5¼ inches; 1¼-inch Flooring shall be worked to $1\frac{3}{32}$ inches thick.

Lengths.—Standard lengths are 10 to 20 foot. Five per cent of 8 or 9 foot is allowed in mixed length shipments of B and better Flooring and in addition 5 per cent of 6 or 7 foot in C or D and 5 per cent of 4 or 5 foot in E.

The above per cent is allowed in all shipments of mixed lengths even though the number of feet of each length in such shipment be specifically stated.

Grades.—A, B, and C Flat; A, B, and C Edge Grain; D and E.

Special Section.—Defects named in Flooring are based upon a piece manufactured from 1x4–12, and pieces larger or smaller than this will take a greater or less number of defects, proportioned to their size on this basis.

45. **A Flat Flooring** must be practically free from defects on the face side and well manufactured.

46. **B Flat Flooring** will admit any two of the following or their equivalent of combined defects: Sap stain or firm red heart not to exceed 15 per cent of the face, three pin knots, one standard knot, three small pitch pockets, one standard pitch pocket, one standard pitch streak, slight torn grain, or small kiln or seasoning checks.

Pieces otherwise good enough for A, but containing not over six small pin wormholes, shall be admitted in B.

47. **C Flat Flooring** will admit any two of the following defects or their equivalent of combined defects: 25 per cent of sap stain, pitch streaks or firm red heart; medium torn grain or other machine defects that will lay without waste; slight shake, or kiln or seasoning checks that do not go through; two standard or six small pitch pockets; two standard knots or six pin knots. Pieces otherwise as good as B may have thirty pinworm holes. Pieces otherwise as good as A may have forty pin wormholes. A piece otherwise as good as A may have 1½ inch of waste such as a loose knot or knot hole.

48. **Edge Grain Flooring, A, B, and C** shall take the same inspection as Flat Grain of those grades, except as to the angle of the grain.

49. Heart Face Edge Grain shall be free from sap on face side.

50. **D Flooring** will admit the following defects or their equivalent of combined defects: Sound knots not over one-half the cross section of the piece in the rough at any one point throughout its length; three pith knots, pitch, pitch pockets, sap stain, firm red heart, seasoning checks or shake that do not go through, a limited number of pin wormholes well scattered, loosened or heavy torn grain, or other machine defects that will lay without waste; pieces otherwise as good as B can have one defect (like a knot hole) that can be cut out by wasting 3 inches of the length of the piece.

51. **E Flooring** admits all pieces that will not grade as good as D Flooring, that can be used for cheap floors without a waste of more than one-fourth the length of any one piece. (See Section 26.)

52. **E Sheathing** will admit of all pieces that cannot be used as E Flooring, but are still available as cheap sheathing or lathing.

53. **Center Matched Flooring** shall be required to come up to grade on face side only.

CEILING.

Sizes.—Ceiling shall be worked to the following: Three-eighths inch Ceiling, $\frac{5}{16}$-inch; $\frac{1}{2}$-inch Ceiling, $\frac{7}{16}$-inch; $\frac{5}{8}$-inch Ceiling, $\frac{9}{16}$-inch; $\frac{3}{4}$-inch Ceiling, $\frac{11}{16}$-inch. Same width as Flooring. The bead on all Ceiling and Partition shall be depressed $\frac{1}{32}$ of an inch below surface line of piece. (For size and location of bead see Section 106.)

Lengths.—Standard lengths are 10 to 20 foot. Five per cent of 8 or 9 foot is allowed in mixed length shipments of B and better Ceiling and in addition 5 per cent of 6 or 7 foot in No. 1 Common; and 5 per cent of 4 or 5 foot in No. 2 Common.

The above per cent is allowed in all shipments of mixed lengths, even though the number of feet in each length in such shipment be specifically stated.

Grades.—A, B, No. 1 and No. 2 Common.

Special Section.—Defects named in Ceiling are based upon a piece manufactured from 1x4–12, and pieces larger or smaller than this will take a greater or less number of defects, proportioned to their size on this basis.

54. **A Ceiling** must be practically free from defects on the face side, and well manufactured.

55. **B Ceiling** will admit of any two of the following defects or their equivalent of combined defects: Slight torn grain, three pin knots, one standard knot, three small pitch pockets, one standard pitch pocket, one small pitch streak, small seasoning or kiln checks, sap stain or firm red heart not to exceed 15 per cent of the face.

Pieces otherwise good enough for A, but containing ten small pin wormholes shall be admitted in B.

56. **No. 1 Common Ceiling** will admit sound knots not over one-half the width of piece in the rough, sap stain, pitch streaks, pitch pockets, firm red heart, slight shake, heavy torn grain, kiln or seasoning checks, or defects in manufacture.

Pieces otherwise good enough for A, but containing one loose or unsound knot or knot hole 1½ inches in diameter or less, shall be graded No. 1 Common.

Pieces otherwise good enough for B, but containing twenty small pin wormholes shall be graded No. 1 Common.

57. **No. 2 Common Ceiling** admits of all pieces not as good as No. 1 Common that can be used without waste of more than one-fourth the length of any one piece. (See Section 26.)

WAGON BOTTOMS.

Sizes.—Unless otherwise ordered (see Section 32), shall be made in sets 38 and 42 inches face, and from stock 4 inches or over in width. Standard thickness shall be 13/16-inch.

Grades.—A and B.

58. **Wagon Bottoms,** unless otherwise ordered (see Section 32), shall be graded the same as A and B Flat Flooring.

DROP SIDING.

Sizes.—D. & M. shall be worked to ¾x3¼ and 5¼-inch face, 5½ over all. Worked Shiplap, to ¾x5 inch face, 5½ over all.

Lengths.—Standard lengths 10 to 20 foot. Five per cent of 8 or 9 foot is allowed in mixed length shipments of B and better Drop Siding, and in addition 5 per cent of 6 or 7 foot in No. 1 Common and 5 per cent of 4 or 5 foot in No. 2 Common.

The above per cent is allowed in all shipments of mixed lengths, even though the number of feet of each length in such shipment be specifically stated.

Grades.—A, B, No. 1 and No. 2 Common.

Special Section.—Defects named in Drop Siding are based upon a piece manufactured from 1x6–12, and pieces larger or smaller than this will take a greater or less number of defects, proportioned to their size on this basis.

For **Grades of** 8-inch, Barn Siding, see Sections 69 and 71. For **Size** see Section 111.

59. **A Drop Siding** must be practically free from defects on the face side and well manufactured.

60. **B Drop Siding** will admit any two of the following defects, or their equivalent of combined defects: Slight torn grain, three pin knots, one standard knot, three small pitch pockets or one small pitch streak, sap stain or firm red heart not to exceed 15 per cent of the face, and small kiln and seasoning checks.

Pieces otherwise good enough for A, but containing twenty small pin wormholes shall be admitted in B.

61. **No. 1 Common Drop Siding** will admit one standard pitch streak or one standard pitch pocket, or their equivalent; and in addition, sound knots not over one-half the width of piece in the rough, sap stain, firm red heart, slight shake, heavy torn grain, defects in manufacture, and kiln or seasoning checks.

Pieces otherwise good enough for A, but containing one loose or unsound knot or knot hole, 1½ inches in diameter or less, shall be graded No. 1 Common.

Pieces otherwise good enough for B, but containing a limited number of small pinworm holes, shall be graded No. 1 Common.

62. **No. 2 Common Drop Siding** admits of all pieces not as good as No. 1 Common that can be used without waste of more than one-fourth the length of any one piece.

BEVEL SIDING.

Size.—To be made from stock S 4 S worked to 13/16x5½ and resawed on a bevel.

Lengths.—Standard lengths, 10 to 20 foot. Five per cent of 8 or 9 foot is allowed in mixed length shipments of B and better Bevel Siding and in addition 5 per cent of 6 or 7 foot in No. 1 Common, and 5 per cent of 4 or 5 foot in No. 2 Common.

The above per cent is allowed in all shipments of mixed lengths, even though the number of feet of each length in such shipment be specifically stated.

Grades.—A, B, No. 1 and No. 2 Common.

63. **Bevel Siding** shall be graded according to the rules for Drop Siding, and will admit in addition slight imperfections on the thin edge, which will be covered by the lap when laid 4½ inches to the weather.

PARTITION.

Sizes.—Partition shall be worked to ¾x3¼ and 5¼ inches. (For size and location of bead, see Sections 106 and 107.)

Lengths.—Same percentage of short lengths allowed as in Ceiling.

Grades.—A, B, No. 1 and No. 2 Common.

64. **Partition** shall be graded according to Ceiling rules, and must meet the requirements of the specified grades on the face side only, but the reverse side shall not be more than one grade lower.

MOLDED CASING AND BASE. WINDOW AND DOOR JAMBS.

Sizes of Molded Casing and Base.—Shall be worked to ¾-inch as per patterns shown in Yellow Pine Manufacturers' Association Molding Book, 1906 edition. (See Section 37.) 1x4 S 4 S shall be 3½ inches wide, finished; 1x5 S 4 S shall be 4½ inches wide, finished; and 1x6 S 4 S shall be 5½ inches wide, finished.

Window and Door Jambs.—(See Section 37.) Dressed, Rabbeted and Plowed as ordered.

Grades.—A and B.

65. **A Molded Casing and Base** must be practically free from defects on the face side and well manufactured.

66. **B Casing or Base** consists of rejections made after dressing stock inspected in the rough as A. The defects admitted in B Ceiling shall be allowed.

67. **Window and Door Jambs** shall be graded the same as molded Casing and Base. See Section 37 for width.

BOARDS, SHIPLAP, AND BARN SIDING.

Sizes of Boards.—1 inch S 1 S or 2 S to $\frac{13}{16}$ inch.

Widths.—On stock width shipments of No. 1 Common, either rough or dressed one or two sides, no piece should be counted as standard width that is more than ¼ inch scant on 8 inch and under; ⅜-inch scant on 9 or 10 inch, or ½ inch scant on 11 or 12 inch or wider. Such pieces should be measured as of the next lower standard of width and not reduced in grade.

Sizes of No. 1 Common Shiplap or D & M and Barn Siding.—8, 10, and 12 inch shall be worked to $\frac{13}{16}$x7⅛, 9⅛, and 11⅛ inches.

Grades.—No. 1, No. 2, and No. 3 and No. 4 Common.

68. **No. 1 Common Boards,** dressed one or two sides, shall be well manufactured; will admit any number of sound knots, not over one-fourth of the cross section of the piece if located at the edge, nor over one-third of the cross section of the piece if located away from the edge; two pith knots, one straight split not to exceed in length the width of the piece, torn grain, pitch, pitch pockets, slight shake, sap stain, seasoning checks, firm red heart, wane ½ inch deep on edge, not exceeding 1½ inches wide and one-third the length of the piece or its equivalent, and a limited number of pinworm holes well scattered.

69. **No. 1 Common Shiplap or D & M and Barn Siding** shall be graded by rules governing No. 1 Common Boards, except as to wane, which shall not be so deep as to extend into the tongue or one-half the thickness of the top lip on the groove in D & M, or over one-half the thickness of the lap in Shiplap on the face side.

GROOVED ROOFING.

Size of Grooved Roofing.—10 and 12-inch S 1 S and 2 E shall be worked to $\frac{13}{16}$x9½ and 11½.

70. **Grooved Roofing** shall be graded by rules governing No. 1 Common Boards, omitting the pith knots, worm holes, and splits in end.

NO. 2 COMMON BOARDS, SHIPLAP, GROOVED ROOFING, AND BARN SIDING.

Size.—S 1 S or S 2 S to $\frac{13}{16}$.

Widths.—On stock width shipments of No. 2 Common, either rough or dressed one or two sides, no piece should be counted as standard width that is more than ½ inch scant on 8 inch or under; ⅝ inch on 9 or 10 inch and ¾ inch on 11 or 12 inch or wider. Such pieces should be measured as of the next lower standard of width and not reduced in grade.

71. **No 2 Common Boards,** dressed one or two sides, **No. 2 Common Shiplap, Grooved Roofing, D & M, and Barn Siding** will admit knots, not necessarily sound, none of which is over one-third the cross section of the piece, if located at the edge, or one-half the cross section if located away from the edge; if sound, may extend one-half the cross section if located on the edge; worm holes, splits or through rotten streaks one fourth the length of the piece, through heart shakes, and wane 2 inches wide, one-half the length of the piece, or defects equivalent to the above.

A knot hole 3 inches in diameter will be admitted, provided piece is otherwise as good as No. 1 Common.

72. **No. 3 Boards** is defective lumber, and will admit of coarse knots, knot holes, very wormy pieces, red rot and other defects that will not prevent its use as a whole for cheap sheathing, or cutting three-fourths its length as No. 2 Common.

73. **No. 4 Boards** shall include all pieces that fall below the grade of No. 3 Common. It is the lowest recognized grade and it is offered on its merits as defective lumber.

74. Miscut 1-inch Boards which do not fall below ¾-inch in thickness shall be admitted in No. 2 Common provided the grade of such thin stock is otherwise as good as No. 1 Common.

FENCING. 3, 4, 5 AND 6 INCHES WIDE.

Sizes.—1 inch S 1 S or 2 S to $\frac{13}{16}$-inch.

Widths.—On stock width shipments of 3, 4, 5 and 6 inch No. 1 Common, no piece should be counted as standard width that is more than ¼ inch scant in width. Such pieces should be measured as of the next standard of width and not reduced in grade.

Grades.—No. 1, No. 2, No. 3 and No. 4 Common.

75. **No. 1 Fencing** will admit the following defects or their equivalent: Sound knots, not over one-half the cross section of piece at any point throughout its length; three pith knots, or their equivalent, wane one-half inch deep on edge not exceeding 1½ inches wide and one-half of the length of the piece, torn grain, pitch, pitch pockets, sap stain, seasoning checks, firm red heart, and a limited number of small worm holes well scattered.

NO. 2 FENCING.

Size.—S 1 S or 2 S to $\frac{13}{16}$ inch.

Widths.—In 3, 4, 5 and 6 inch No. 2 Common stock, no piece shall be counted as standard width that is more than ½ inch scant in width. Such pieces should be measured as of the next lower standard of width and not reduced in grade.

76. **No. 2 Fencing,** in addition to the defects allowed in No. 1 Common, will admit the following defects or their equivalent: Knots, not necessarily sound, which do not occupy more than one-half of the cross section at any one point if located at the edge of the piece nor more than two-thirds of the cross section if located away from edge, one straight split one-fourth the length of the piece, worm holes, rotten streaks that do not go through; shake and wane, but must be good enough to be used in full length as fencing.

A knot hole 1½ inches in diameter or its equivalent in small hollow knots will be allowed, provided the piece is otherwise as good as No. 1 Common.

77. **No. 3 Fencing** is defective lumber, and will admit of coarse knots, knot holes, very wormy pieces, red rot and other defects that will not prevent its use as a whole for cheap sheathing, or cutting three-fourths its length as No. 2 Common.

78. **No. 4 Fencing** shall include all pieces that fall below the grade of No. 3 Common. It is the lowest recognized grade and it is offered on its merits as defective lumber.

79. Miscut 1-inch Fencing which does not fall below ¾ inch in thickness shall be admitted in No. 2 Common, provided the grade of such thin stock is otherwise as good as No. 1 Common.

DIMENSION. S 1 S 1 E.

Sizes. Dimension shall be worked to the following: 2x4 S 1 S and 1 E to 1⅝x3⅝ inches; 2x6 S 1 S and 1 E to 1⅝x5⅝ inches; 2x8 S 1 S and 1 E to 1⅝x7½ inches; 2x10 S 1 S and 1 E to 1⅝x9½ inches; 2x12 S 1 S and 1 E to 1⅝x11½ inches. Dimension S 4 S ⅛ inch less than standard size S 1 S and 1 E.

Heavy Joists.—Shall be worked to the following: 2x14, 2½ and 3x10, 12 and 14, S 1 S and 1 E, green, ¼ inch off side and ½ inch off edge. Heavy Joists, rough, green, must not be over ¼ inch scant in width or thickness.

Dry 2x14 shall be dressed to the standard thickness of 2x12.

Grades.—No. 1, No. 2 and No. 3 Common.

80. Inspection of Dimension is a question of strength and uniformity of size, and whatever reduces its strength in cross section must be considered a defect to that extent. In computing the area of cross section occupied by defects, the size of the piece in the rough shall be considered.

81. **No. 1 Common Dimension** will admit sound knots, none of which in 2x4s should be larger than 2 inches in diameter on one or both sides of the piece, and on wider stock which do not occupy more than one-third of the cross section at any point throughout its length if located at the edge of the piece; or more than one-half of the cross section if located away from the edge; pith knots, or smaller or more defective knots which do not weaken the piece more than the knot aforesaid; will admit of seasoning checks, firm red heart, heart shakes that do not go through, wane ¾ of an inch deep on edge, ¼ the width and ⅓ the length of the piece, pitch, sap stains, pitch pockets, splits in ends not exceeding in length the width of the piece, a limited number of small wormholes well scattered, and such other defects as do not prevent its use as substantial structural material.

82. **No. 2 Common Dimension** may have knots, not necessarily sound, which do not occupy more than one-half of the cross section at any one point if located at the edge of the piece, nor more than two-thirds of the cross section if located away from the edge; smaller, loose, hollow, or rotten knots that do not weaken the piece more than the knots aforesaid; will admit rotten streaks, shake, wane, wormholes, split not to exceed ¼ the length of the piece, and other defects which do not prevent its use without waste.

83. **No. 3 Dimension** will include all pieces falling below No. 2 grade which are sound enough to use for cheap building material, by wasting 25 per cent of one-third of any item in a shipment, but it must not be more than ½ inch scant of standard finished width or ⅜ inch scant in thickness.

84. Miscut 2-inch stock which does not fall below 1½ inches in thickness or ⅛ inch scant in width from standard size, shall be admitted in No. 2 Common, provided such pieces are in all other respects as good as No. 1 Common.

ROUGH YELLOW PINE FINISHING.

Widths.—On stock width shipments of C and better finish, either rough or dressed one or two sides, no piece should be counted as standard width that is more than ¼ inch scant on 8-inch and under; ⅜ inch scant on 9 and 10-inch, or ½ inch scant on 11 and 12-inch or wider. Such pieces should be measured as of the next lower standard of width, and not reduced in grade.

Lengths.—Standard Lengths are 10 to 20 feet and in shipments of mixed lengths 5 per cent of 8 or 9 foot in grades of C and better shall be admitted.

The above per cent is allowed in all shipments of mixed lengths, even though the number of feet of each length in such shipment be specifically stated.

85. Finish must be evenly manufactured, and shall embrace all sizes from 1 to 2 inches in thickness by 3 inches and over in width.

86. No inch, 1¼ and 1½ finishing lumber, unless otherwise ordered, shall measure when dry more than $\frac{1}{16}$ inch scant in thickness; on 2-inch it may be ⅛ inch scant.

87. Wane and seasoning checks and other defects that will dress out in working to standard thickness and widths are admissible.

88. Subject to the foregoing provisons, Rough Finishing shall be graded according to the specifications applying to dressed finishing lumber.

89. All rough finishing lumber, if thicker than specified thickness for dry or green stock, may be dressed to such standard thickness, and when so dressed shall be considered as rough stock.

When like grade on both faces is required, special contract must be made.

COMMON BOARDS, FENCING AND DIMENSION.

90. Rough Common Boards and Fencing must be well manufactured, and should not be less than ⅞ inch thick when dry.

91. Rough 2-inch Common shall be well manufactured, and not less than 1⅞ inches thick when green, or 1¾ inches thick when dry. The several widths must not be less than ⅛ inch over the standard dressing width for such stock.

92. Rough Common Dimension of a greater thickness than 2 inches and less than 4 inches shall be subject to special contract as to thickness and width.

93. **Rough Dimension**, if thicker than specified thickness for dry or green stock, may be dressed to such standard thickness, and when so dressed shall be considered as rough stock.

94. The defects admissible in Rough Boards, Fencing, and Dimension shall be the same as those applying to dressed stock of like kind and grade, and such further defects as would disappear in dressing to standard sizes of such material shall be allowed.

NO. 1 COMMON TIMBERS.

Sizes.—Common Timber shall be worked to the following: 4x4, 4x6, 6x6, ⅜ inch off side and edge. Surfaced 4 sides, ¼ inch off each side. 6x8 and larger S 4 S, ¼ inch off each side surfaced.

95. **Rough Timbers**, 4x4 and larger, shall not be more than ¼ inch scant at any point when green, and be well manufactured, with not less than three square edges, and will admit sound knots that do not occupy more than one-third the cross section of the piece or small defective knots.

Timbers 10x10 in size may have a 2-inch wane on one corner, measured on faces, or its equivalent on two or more corners one-third the length of the piece. Larger sizes may have proportionately greater defects.

Shakes extending not over one-eighth of the length of the piece are admissible, and seasoning checks shall not be considered a defect.

96. Dressed Timbers shall conform in grading to the specifications applying to rough timbers of same size.

97. Rough Timbers, if thicker than specified thickness for dry or green stock, may be dressed to such standard thickness, and when so dressed shall be considered as rough stock.

98. **Yellow Pine Plastering Lath.—No. 1** shall measure 2 inches in thickness to every five lath, green, the minimum thickness of any one lath shall not be less than $\frac{5}{16}$ of an inch, green, and should not be less than $1\frac{7}{16}$ inches in width, green, length 4 feet. 1⅞ inches thickness to every 5 lath, dry, and should not measure less than $1\frac{5}{16}$ inches in width, dry. Will admit wane ⅛ of an inch deep, ¼ of an inch on face, and 6 inches long, pin worm

holes and one pin knot. Must not be more than ½ of an inch scant in length. Blue sap stain shall not be considered a defect.

99. **No. 2** shall consist of pieces that fall below the grade of No. 1 which are not less than 1¼ inches in width, ¼ of an inch thick, when dry, and are not more than ¾ inch short in length. Will admit wane, wormholes, knots, and other defects that will not prevent their use the entire length without waste.

BYRKIT LATH.

Size.—¾x3¼ and 5¼ inches wide, lengths 4 feet and upward.

Grades.—Standard and Merchantable.

100. **Standard** shall consist of such pieces as will be held firmly in place and support plaster by ordinary nailing and will present a full surface without any openings over ⅜ of an inch in diameter.

101. **Merchantable** shall consist of such pieces as fall below the grade of Standard, yet can be used for the purpose intended by cutting out knot holes and other defects, by wasting not over 16 inches of the length of any one piece.

STANDARD SIZES OF DRESSED LUMBER.

102. **Finishing.**—Shall be dressed to the following: 1 inch S 1 S or 2 S to $\frac{13}{16}$, 1¼ inch S 1 S or 2 S to $1\frac{1}{16}$, 1½ inch S 1 S or 2 S to $1\frac{5}{16}$, 2 inch S 1 S or 2 S to 1¾ inches. 2 inch S 4 S ¼″ off each edge.

103. **Molded Casing and Base.**—Shall be worked to ¾-inch as per patterns shown in Yellow Pine Manufacturers' Association Molding Book, 1906 edition. 1x4 S 4 S shall be 3½ inches wide, finished; 1x5 S 4 S shall be 4½ inches wide, and 1x6 S 4 S shall be 5½ inches wide, finished.

104. **Flooring.**—The standard of 1x3, 1x4, and 1x6 inches D and better shall be worked to $\frac{13}{16}$x2¼, 3¼, and 5¼ inches; 1¼-inch Flooring shall be $1\frac{3}{32}$ inches thick.

105. **Drop Siding.**—D & M shall be worked to ¾x3¼ and 5¼ inches face, 5½″ over all. Worked Shiplap, ¾x5 inch face, 5½″ over all. Patterns that are not shown in Yellow Pine Manufacturers' Association Molding Book of January, 1906, edition are considered special.

106. **Ceiling.**—Shall be worked to the following: ⅜-inch Ceiling, $\frac{5}{16}$ inch; ½-inch Ceiling, $\frac{7}{16}$ inch; ⅝-inch Ceiling, $\frac{9}{16}$ inch; ¾-inch Ceiling, $\frac{11}{16}$ inch. Same width as Flooring. The standard working of ceiling shall be beaded center and edge with slight bevel on groove edge. The bead on all Ceiling and Partition shall be depressed $\frac{1}{32}$ of an inch below surface line of piece.

107. **Partition.**—Shall be worked to the following: ¾x3¼ and 5¼ inches. Same standard for location of and size of bead as applies to ceiling. (See Section 106.)

108. **Bevel Siding.**—To be made from stock S 4 S worked to $\frac{13}{16}$x5½″ and resawed on a bevel.

109. **Window and Door Jambs.**—(See Section 37.) Dressed, Rabbeted, and Plowed as ordered.

110. **Boards and Fencing.**—1-inch S 1 S or 2 S to $\frac{13}{16}$ inch.

111. **Shiplap and Barn Siding No. 1 Common.**—8, 10, and 12 inch shall be worked to $\frac{13}{16}$x7⅛, 9⅛, and 11⅛ inches.

112. **D and M No. 1 Common.**—8, 10, and 12 inch. Shall be worked to the following: $\frac{13}{16}$x7⅛, 9⅛, and 11⅛ inches.

113. **Grooved Roofing.**—10 and 12 inch S 1 S and 2 E shall be worked to $\frac{13}{16}$x9½ and 11½ inches.

114. **Wagon Bottoms,** unless otherwise ordered (see Section 32), shall be made in sets 38 and 42 inches face, and from stock 4 inches or over in width.

Standard thickness shall be $\frac{13}{16}$ inch.

115. **Dimension** shall be worked to the following: 2x4 S 1 S and 1 E to 1⅝x3⅝ inches; 2x6 S 1 S and 1 E to 1⅝x5⅝ inches; 2x8 S 1 S and 1 E to 1⅝x7½ inches; 2x10 S 1 S and 1 E to 1⅝x9½ inches; 2x12 S 1 S and 1 E to 1⅝x11½ inches. Dimension S 4 S ⅛ inch less than standard size S 1 S and 1 E.

116. **Heavy Joists** shall be worked to the following: 2x14, 2½ and 3x10, 12 and 14, S 1 S and 1 E, green, ¼ inch off side and ½ inch off edge. Heavy Joists, rough, green, must not be over ¼ inch scant in width or thickness.

117. **Heavy Flooring.**—For 1½, 2 and 2½-inch matching, the thickness should be ⅜ of an inch less than the rough material. The tongue should be ⅜-inch thick and ⅜-inch long. For 3 inch and thicker matching, the tongue should be ¾-inch thick and ⅜-inch long, and the thickness of the stock should be ⅜-inch less than the rough material. The groove in heavy matchings should be $\frac{1}{16}$-inch wider than the thickness of the tongue, and $\frac{1}{16}$-inch deeper than the length of the tongue. Tongue and groove shall be located ¼ the thickness of the rough material from the bottom of the piece. In 2 inch and thicker material plowed for splines the groove should be the same width and depth as is provided for in matching material of the same thickness.

118. **Timbers** shall be worked to the following: 4x4, 4x6, 6x6, ⅜ inch off side and edge. Surfaced 4 sides, ¼ inch off each side. 6x8 and larger S 4 S ¼ inch off each side surfaced.

119. **Yellow Pine Plastering Lath.—No. 1** shall measure 2 inches in thickness to every five lath, green. The minimum thickness of any one lath shall not be less than $\frac{5}{16}$ of an inch, green, and should not be less than $1\frac{7}{16}$ inches in width, green; length 4 feet. 1⅞ inches thickness to every 5 lath, dry, and should not measure less than $1\frac{5}{16}$ inches in width, dry. Must not be more than ½ of an inch scant in length when dry.

120. **No. 2** must not be less than 1¼ inches in width, ¼ of an inch thick when dry, and not more than ¾ inch short in length.

121. **Byrkit Lath.**—¾x3¼ and 5¼ inches wide, lengths 4 feet and upward.

PICKETS.

122. **Square Pickets.**—From 1½-inch stock shall be worked to $1\frac{5}{16}$x$1\frac{5}{16}$, 3 and 4 feet long, dressed on 4 sides and pointed. From 1¼-inch stock shall be worked to $1\frac{1}{16}$x$1\frac{1}{16}$, 3 and 4 feet long, dressed on 4 sides and pointed.

123. **Flat Pickets.**—From 1x3 stock shall be worked to ¾x2¼, 3 and 4 feet long, dressed on 4 sides and headed.

CLASSIFICATION AND INSPECTION OF YELLOW PINE FOR EXPORT.

[Copyrighted 1906 by Yellow Pine Manufacturers' Association.]

GENERAL RULES.

1. The term "Resawn lumber" shall include all of the sizes referred to in this classification.

2. All resawn lumber must be sound, well manufactured, evenly sawn, square butted with saw, square edge unless otherwise specified, free from unsound, loose and hollow knots, worm and knot holes, through splits and through shakes.

3. Unless otherwise specified lumber shall be 12 feet and up long. All fractional sizes not herein otherwise provided for shall be classed and inspected as the next lower size if the fraction is less than half the difference between the two sizes given in the classification, but if it is half the difference, or more, it shall be classed as the next size above. All sizes one inch or less in thickness shall be counted as one inch thick.

4. In the measurement of dressed lumber, the width and thickness of the lumber before dressing must be taken, less than one inch thick being considered one inch.

5. When the term "per cent" is used reference is made to pieces; for example "80 per cent free from knots" means that 80 of every 100 pieces shall be free from knots.

6. The limitation as to size and number of knots refers to the heart face. In the measurement of knots the average diameter must be taken. The distribution of knots need not be proportionate i. e., one knot to each six feet or fraction thereof, means that a piece 24 feet long may have four knots anywhere in the piece and not one knot in each separate six

feet. The allowance of one knot 1½ inches in diameter to six feet means that the piece may have one knot 1½ inches or a greater number of less than 1½ inches but not exceeding the equivalent. In the limitations as to size, number and percentage free from knots, no account shall be taken of knots one-half (or less) of the diameter of the maximum knot allowed in the grade, or, if no knots are allowed, of the maximum knot in the next grade below. Provided that knots covered by this exception shall not exceed ¾ inch in diameter.

7. In dimension where wane is allowed it shall not exceed one inch wide on the smallest size, allowing half inch increase to every inch increase in the dimension. Wane allowed may be anywhere on the corner and need not be continuous, but the aggregate must not exceed the total allowance. The larger dimension of the piece must be taken in the calculation of wane. Wane shall be measured across its face.

8. When there is a percentage free from knots or centres, reference is made to the least thickness, the percentage to be decreased 10 for each inch increase in the thickness, and proportionately for fractions of inches.

ROUGH FLOORING.

Sizes.—1x3, 1x3½, 1x4, 1x4½, 1x5, 1x6.
1¼x3, 1¼x3½, 1¼x4, 1¼x4½, 1¼x5, 1¼x6.
1½x3, 1½x4, 1½x5, 1½x6.
1¾x3, 1¾x4, 1¾x5, 1¾x6.

Grades.—Rift, special, standard and square edge.

Rift.—No. 1. Must be all heart with exception of one inch sap on one corner, rift grain the entire length, free from splits, shakes and knots, and the heart face free from pitch pockets and resin streaks.

No. 2. Must be one heart face, rift grain the entire length, free from splits, shakes and knots exceeding ½ inch. Provided that 50 per cent shall be free from knots, pitch pockets and resin streaks on the heart face.

Special.—Must be bright, one heart face, free from splits, shakes and centres. Not to have more than one knot one inch on the 3, 3½, 4, and 4½ inch, or one knot 1¼ inch on the five and six inch to each six feet or fraction thereof. Provided, that 80 per cent shall be free from knots.

Standard or South American.—Must be one heart face admitting sound knots.

Square Edge.—General rules, second paragraph.

BOARDS AND PLANKS.

Sizes of Boards.—1x7 and up.
1¼x7 and up.
1½x7 and up.
1¾x7 and up.

Sizes of Planks.—2x7 and up.
2¼x7 and up.
2½x7 and up.
2¾x7 and up.

Grades.—Stepping, special prime, prime, standard or Genoa prime, merchantable or South American and square edge.

Stepping.—Must be three corners heart, free from pitch on the faces, splits and shakes. Not to have more than one knot ½ inch on the seven to 10 inch, or one knot ¾ inch on the 11 inch and up, to each six feet or fraction thereof. Provided, that 50 per cent shall be free from knots.

Special.—*Boards.*—Must be bright, one heart face, except sap one inch wide, free from splits, shakes and centres. Not to have more than one knot one inch on the seven to 10 inch or one knot 1¼ inch on the 11 inch and up, to each six feet or fraction thereof. Provided that 80 per cent shall be free from knots. *Planks.*—Must be bright, one heart face, except sap one inch wide, free from splits, shakes and centres. Not to have more than one knot 1¼ inch on the seven to 10 inch or one knot 1½ inch on the 11 inch and up, to each six feet or fraction thereof. Provided that 80 per cent shall be free from knots.

Prime.—*Boards.*—Must be one heart face and two-thirds heart surface on other face, to show heart the entire length, free from pith on the faces, splits and injurious open shakes. Not to have more than one knot 1¼ inch on the seven to 10 inch or one knot 1½ inch on the 11 inch and up, to each six feet or fraction thereof. *Planks.*—Must be one heart face and two-thirds heart surface on other face, to show heart the entire length, free from pith on the faces, splits and injurious open shakes. Not to have more than one knot 1½ inch on the seven to 10 inch or one knot 1¾ inch on the 11 inch and up, to each six feet or fraction thereof.

Standard or Genoa Prime.—Must be one heart face and two-thirds heart surface on other face, except that the 12 inch may have one inch sap on each edge of the heart face and the 13 inch and up 1½ inches.

Merchantable or South American.—The seven to nine inch must be one heart face and show heart on other face, and the 10 inch and up must be two-thirds heart surface on both faces.

Square Edge.—General rules, second paragraph.

DEALS.

Sizes.—3x9 and up.
4x9 and up.
5x9 and up.

Grades.—Special, prime, standard or Rio, merchantable or South American and square edge.

Special.—Must be bright, one heart face, free from splits, shakes and centres. Not to have more than one knot 1½ inches on the three and four inch or one knot 1¾ inches on the five inch to each six feet or fraction thereof. Provided that 70 per cent shall be free from knots.

Prime.—Must be one heart face, and two-thirds heart surface on other face, to show heart the entire length, free from injurious open shakes, and knots exceeding two inches on the three and four inch or 2¼ inches on the five inch.

Standard or Rio.—Must be one heart face and two-thirds heart surface on other face; except that the 12 inch may have one inch sap on each edge of the heart face and the 13 inch and up 1½ inches.

Merchantable or South American.—The nine inch must be one heart face and show heart on other face, and the 10 inch and up must be two-thirds heart surface on both faces.

Square Edge.—General rules, second paragraph.

SCANTLING.

Sizes.—2x2, 2x3, 2x4, 2x5, 2x6.
3x3, 3x4, 3x5, 3x6, 3x7, 3x8.
4x4, 4x5, 4x6, 4x7, 4x8.
5x5, 5x6, 5x7, 5x8.

Grades.—Decking, prime, merchantable and square edge.

Decking.—Must be all heart, free from splits, shakes, centres and corner knots. The 2x2, 2x3 and 2x4 to have no knots exceeding ¾ inch, the 2x5, 2x6, 3x3, 3x4, 3x5 and 3x6 no knots exceeding 1 inch, and other sizes no knots exceeding 1½ inches.

Prime.—Must be three corners heart.

Merchantable or South American.—Must be heart one edge or one face, and free from loose and unsound knots.

Square Edge.—General rules, second paragraph.